

Before the  
Federal Communications Commission  
Washington, D.C. 20554

In the Matter of	)	
	)	
Review of Part 87 of the Commission's Rules	)	WT Docket No. 01-289
Concerning the Aviation Radio Service	)	

## REPORT AND ORDER AND FURTHER NOTICE OF PROPOSED RULE MAKING

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## I. INTRODUCTION AND EXECUTIVE SUMMARY

1 In this *Report and Order*, we amend Part 87 of the Commission's Rules (Part 87)<sup>1</sup> in an effort to accommodate technological advances, facilitate operational flexibility, and promote spectral efficiency in the Aviation Radio Service. In undertaking this streamlining and updating of the Part 87 rules, we have sought to avoid unnecessary regulation of aviators and equipment manufacturers, while keeping foremost in mind the impact our decisions may have on safety of life and property in air navigation. The amendments we adopt in this *Report and Order* are derived from those which were either proposed in the *Notice of Proposed Rule Making (NPRM)*<sup>2</sup> in this proceeding or proposed by parties filing comments in response to the *NPRM*. With respect to some issues, including certain proposals advanced by commenters, we believe the present record is inadequate to make a fully informed decision, and so we invite further comment on those proposals in the *Further Notice of Proposed Rule Making (FNPRM or Further Notice)*, which follows the *Report and Order*.

2 The major decisions we make in this *Report and Order* are that we:

- update the technical specifications for Aeronautical Mobile Satellite (Route) Service (AMS(R)S) equipment,
- decline at this time to authorize the provision of AMS(R)S under Part 87 in the 1610-1626.5 MHz and 5000-5150 MHz frequency bands with the same priority and real-time preemptive access accorded to AMS(R)S in the 1554-1559 MHz and 1646.5-1660.5 MHz bands;
- permit the certification of dual spacing transceivers to accommodate aircraft operating in countries that employ 8.33 kHz channel spacing;
- extend license terms of non-aircraft stations from five to ten years;
- extend the construction period for aeronautical advisory stations (unicoms)<sup>3</sup> and radionavigation land stations from eight months to one year;
- eliminate all references to the Civil Air Patrol from Part 87;
- authorize use of the Differential Global Positioning System (DGPS) in the 108-117.975 MHz and 1559-1610 MHz bands on a non-developmental basis, and also require DGPS receivers to meet minimum interference immunity requirements,
- modify the licensing approach for unicom,
- retain, without revision, the rule specifying that there may be only one aeronautical enroute station licensee per location, but clarify that the licensee is expected to provide access to the

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<sup>1</sup> 47 C.F.R. § 87.1 et seq.

<sup>2</sup> Review of Part 87 of the Commission's Rules Concerning the Aviation Radio Service, *Notice of Proposed Rule Making*, WT Docket No. 01-289, 16 FCC Rcd 19005 (2001).

<sup>3</sup> Unicom stations are used to provide safety-related and other information to aircraft, primarily general aviation aircraft. Unicom transmissions are limited to the necessities of safe and expeditious operation of aircraft, including runway conditions, types of fuel available, wind conditions, weather information, dispatching, and other necessary safety information. However, unicom stations may also transmit, on a secondary basis, information pertaining to the efficient portal-to-portal transit of an aircraft, such as information concerning available ground transportation, food, and lodging. Unicom stations must provide impartial information concerning available ground services, and must provide service to any aircraft station upon request and without discrimination. 47 C.F.R. § 87.215.

spectrum on a reasonable, nondiscriminatory basis.

3 In addition, the *FNPRM* seeks comment on the following matters, which either were raised by commenters in response to the *NPRM*, or which we now propose:

- use of Universal Access Transceiver technology on the 978 MHz frequency;
- permitting licensees to utilize any emission type of their choosing in aeronautical spectrum that is not shared with other services, subject to certain conditions, and eliminating all requirements specific to data rates and modulation types, in order to accommodate new technologies such as Inmarsat's 64 kbps service;
- enabling the use of non-geostationary satellite networks for AMS(R)S;
- broadening AMS(R)S regulations so that they take account of the satellite systems of both Inmarsat and other operators;
- adopting additional technical requirements for AMS(R)S;
- identifying new uses for the frequencies formerly reserved for the Civil Air Patrol;
- removing the radionavigation allocation in the 14000-14200 MHz band;
- expanding the availability of air traffic control spectrum for ground control communications;
- codifying a waiver permitting certification and use of a back-up safety device designed to supplement conventional 121.5 MHz Emergency Locator Transmitters (ELTs);
- codifying a waiver authorizing a special station identification format to be used by aircraft being operated by maintenance personnel from one location in an airport to another location in the airport, and
- terminating the assignment of FCC control numbers to ultralight aircraft.

## II. BACKGROUND

4 Part 87 of the Commission's Rules governs the "Aviation Radio Service," an "umbrella term" that encompasses three discrete radio services designed to protect the safety of life and property in air navigation. These three services are: (1) the Aeronautical Mobile Service, which includes unicoms, aeronautical enroute stations, airport control stations, aircraft stations, and automatic weather observation stations; (2) the Aeronautical Radionavigation Service, which includes stations used for navigation, obstruction warning, instrument landing, and measurement of altitude and range; and (3) the Aeronautical Fixed Service, which is a system of fixed stations utilizing point-to-point radio communications for aviation safety, navigation or preparation for flight. The Commission has regulatory oversight responsibilities with respect to Aviation Radio Service, as does the Federal Aviation Administration (FAA).

5. As noted in the *NPRM*,<sup>4</sup> federal regulation of aviation communications pre-dates the creation of the Commission in 1934. As early as 1929, the Federal Radio Commission, the predecessor to this Commission as the federal agency charged with regulating communications services, adopted regulations

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<sup>4</sup> *NPRM*, 16 FCC Rcd at 19007 ¶ 4

regarding aviation communications.<sup>5</sup> Moreover, the FCC, from its earliest days, recognized the vital importance of its oversight of aviation communications.<sup>6</sup> The FCC's rules governing the Aviation Radio Service were initially codified in Part 9 of its Rules, but were moved to Part 87 in 1963.<sup>7</sup> Prior to the instant rulemaking, the Part 87 rules were subject to an across-the-board review only once, in 1988.<sup>8</sup> To review developments that have occurred in the interim, the *NPRM* was released on October 16, 2001. In response to the *NPRM*, we received nine comments and seven reply comments.<sup>9</sup>

### III. REPORT AND ORDER

#### A. Aeronautical Mobile Satellite (Route) Service (AMS(R)S) Issues

##### 1. Updating of Technical Standards for AMS(R)S Equipment

6. *Background.* AMS(R)S<sup>10</sup> is a radio service providing communications via satellite between an aircraft earth station (AES)<sup>11</sup> and land stations or other AES.<sup>12</sup> AMS(R)S provides communications supporting operational control of both domestic and international air traffic. Such communications are important to the safe, efficient and economical operation of aircraft, and may convey information critical to aviation, such as aircraft position reports, performance, essential services and supplies, and weather information.<sup>13</sup> Public correspondence – private or personal messages of passengers or crew – is prohibited.

7 In 1992, the Commission adopted technical standards and licensing procedures for AMS(R)S.<sup>14</sup> These requirements were based on standards promulgated by industry standard-setting organizations, such as the Minimum Operational Performance Standards (MOPS), developed by RTCA, Inc (RTCA),<sup>15</sup> and the Standards and Recommended Practices (SARPs), developed by the International

<sup>5</sup> See Federal Radio Commission, 3<sup>rd</sup> Annual Report, at 25 (1929).

<sup>6</sup> See, e.g., Federal Communications Commission, 3<sup>rd</sup> Annual Report, at 68 (1938) (“[w]ithout the aid of radio facilities authorized by the Commission, high speed passenger and air-mail service would be impracticable”).

<sup>7</sup> Reorganization and Revision of Chapter, *Order*, 28 Fed. Reg. 12386, 12388 (1963).

<sup>8</sup> See Reorganization and Revision of Part 87 Governing the Aviation Services, *Report and Order*, PR Docket No. 87-215, 3 FCC Rcd 4171 (1988).

<sup>9</sup> See Appendix C, *infra*, for names of commenters and the acronyms by which they are referred to herein. The FAA's initial and reply comments were filed late, accompanied by requests for waivers of the filing deadlines. We grant the waiver requests and accept the FAA's comments in the interest of having as complete a record as possible upon which to base the decisions in this proceeding.

<sup>10</sup> AMS(R)S was formerly referred to as AMSS(R). The “(R)” in both terms indicates that the spectrum is used for aeronautical communications related to the safety and regularity of flights primarily along national and international civil air routes.

<sup>11</sup> The term “aircraft earth station” refers to any mobile earth station in the aeronautical mobile-satellite service located on board an aircraft. See 47 C.F.R. § 87.5.

<sup>12</sup> See The Establishment of Policies and Service Rules for the Mobile Satellite Service in the 2 GHz Band, *Report and Order*, IB Docket No. 99-81, 15 FCC Rcd 16127, 16154 ¶ 61 (2000) (*2 GHz Band Order*).

<sup>13</sup> See 47 C.F.R. § 87.261(a).

<sup>14</sup> See Amendment of Part 87 of the Commission's Rules to Establish Technical Standards and Licensing Procedures for Aircraft Earth Stations, *Report and Order*, PR Docket No. 90-315, 7 FCC Rcd 5895 (1992) (*AES Order*).

<sup>15</sup> RTCA is an FAA-sponsored association of aeronautical organizations with diverse membership. Organized in 1935 as the Radio Technical Commission for Aeronautics, RTCA today includes over 200 government, industry, and academic organizations from the United States as well as other nations, who seek technical solutions to problems involving the application of electronics and telecommunications to aeronautical operations. The findings (continued. ...)

Civil Aviation Organization (ICAO).<sup>16</sup>

8 Observing that the AMS(R)S technical standards in Part 87 had not been amended since 1992 although frequent updates had been made to the relevant MOPS and SARPs, the Commission proposed in the *NPRM* to revise Sections 87.131 and 87.139(i) of the Commission's Rules.<sup>17</sup> The proposed rule changes were intended to ensure that the Part 87 AMS(R)S technical standards comport with current industry standards.<sup>18</sup> Specifically, the Commission proposed to amend Section 87.131 to increase the allowable maximum output power of AES from sixty watts to eighty watts.<sup>19</sup> The Commission reasoned that the eighty-watt maximum is the correct value, given that output power is measured at the output of the high power amplifier (HPA), before factoring in losses from RF cable and diplexer filtering.<sup>20</sup> The Commission proposed to amend Section 87.139(i) so that the emission limits set forth therein would be consistent with the most recent industry standards. In addition, it sought to eliminate provisions that duplicate standards established by the FAA in its Technical Standards Order governing AMS(R)S.<sup>21</sup>

9 *Discussion.* Based on our review of the record in this proceeding, we now believe that the current sixty-watt maximum, reflected in Section 87.131, should be retained. Honeywell and Rockwell Collins, the only parties commenting on this issue, agree that retention of the sixty-watt maximum is appropriate.<sup>22</sup> As they correctly note, the Commission's premise for proposing the increase to eighty watts was that the reference point for the power measurement is the output of the HPA, as is typically specified in the Commission's Rules. However, we now believe that in this case the reference point should remain at the level of input port to the antenna subsystem because given the current state of transmitter technology it would not be possible for industry to meet spurious and harmonic emission requirements at the HPA output without the filtering provided by the diplexer.<sup>23</sup> Moreover, we believe that retaining the sixty-watt maximum with measurement at the input port of the antenna subsystem better conforms to relevant RTCA and ICAO specifications.<sup>24</sup> We therefore retain the maximum allowable value of sixty watts, and revise footnote 8 of Section 87.131 in order to clarify that the maximum average output power for aircraft earth stations may not exceed sixty watts, as measured at the input port of the antenna subsystem, including any installed diplexer.<sup>25</sup> This amendment provides clear guidance to

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of RTCA are in the nature of recommendations to all organizations concerned. While RTCA is not a government agency, its Special Committees act under the Federal Advisory Committee Act and its findings and recommendations are often adopted and turned into policy by government agencies.

<sup>16</sup> ICAO is an international body, operating under the auspices of the United Nations, that develops standards and recommended practices for international application in civil air navigation. Its recommendations, in part, serve as the basis for the Aviation Radio Service rules. See 47 C.F.R. § 87.1(a)(3).

<sup>17</sup> 47 C.F.R. §§ 87.131, 87.139(i).

<sup>18</sup> *NPRM*, 16 FCC Rcd at 19009 ¶ 7.

<sup>19</sup> *NPRM*, 16 FCC Rcd at 19009 ¶ 8.

<sup>20</sup> *Id.*

<sup>21</sup> *Id.* at 19009 ¶ 9.

<sup>22</sup> *Honeywell Comments* at 1-2, *Rockwell Collins Comments* at 2-3.

<sup>23</sup> See *Honeywell Comments* at 2, *Rockwell Collins Comments* at 3.

<sup>24</sup> *Id.*

<sup>25</sup> Honeywell suggests a revision to n 8 of 47 C.F.R. § 87.131 that goes beyond merely clarifying that the reference point for the power measurement is at the level of input to the antenna subsystem. In particular, Honeywell seeks to revise the second sentence of the footnote and to add a third sentence, which collectively would read as follows: "The maximum EIRP generated by the maximum power into the antenna port and the maximum designed antenna gain may not exceed 2 000 watts. The maximum average output power under closed-loop gain control may not

(continued. )

avionics equipment manufacturers, is reflective of the relevant international standards, and continues to serve the purpose for which the restriction was established.<sup>26</sup>

10 With respect to the emission limits, we adopt the proposed amendment of Section 87.139(i) set forth in the *NPRM*.<sup>27</sup> Commenters agree that our proposal appropriately aligns the rule with the emission limits set forth in RTCA DO-210D Change 1.<sup>28</sup> Honeywell and Rockwell Collins also suggest that we add footnotes to the rule to reflect notes 5 and 6 in RTCA DO-210D Change 1.<sup>29</sup> We will do so, in keeping with our objective of making the rule consistent with current industry standards.

11 Honeywell and Rockwell Collins state that some of the values set forth in the proposed amendment of Section 87.139(i) in Appendix A to the *NPRM* should be listed as negative values.<sup>30</sup> All of the values in the proposed amendment to Section 87.139(i) set forth in Appendix A to the *NPRM*, as in the current rule, were listed as positive values (in contrast to the negative values found in the analogous table in RTCA/DO-210D). Positive values were listed in light of the Commission's proposed footnote 1 to the table, which states that "[t]hese values are expressed in dB below the carrier referenced to the bandwidth indicated..." (Emphasis added.) However, upon further reflection, we believe it would better advance our goal of aligning Section 87.139(i) with RTCA/DO-210D Change 1 if all of the values in the table were expressed as negative values and footnote 1 were rewritten to specify that the values are expressed in dB referenced to the carrier for the bandwidth indicated. Our final amendment of the rule accords with this determination. Finally, we decline to take any action on Honeywell's request that the Commission review the requirements of RTCA/DO-210D Change 1, item 19, and determine how to appropriately reflect those requirements in Part 87.<sup>31</sup> Item 19 effectively establishes a guard band of five megahertz between AMS(R)S/AMSS aircraft-to-satellite transmissions governed by RTCA/DO-210D, on the one hand, and the upper edge of the so-called "Big LEO" band at 1610-1626.5 MHz, on the other. This issue affects satellite system operators and Part 25 regulatory requirements as much as it does Part 87 licensees and Part 87 regulatory requirements, and is in the nature of an allocation issue that we believe should be addressed in a broader rulemaking than one focused just on the Part 87 regulations. We therefore conclude that Honeywell's request is beyond the scope of this proceeding.

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exceed 630 watts." Honeywell Comments at 2. We decline to adopt this proposed language because we find it unnecessary to clarify the rule beyond indicating that the proper reference point for the power measurement is after the diplexer; moreover, Honeywell's explanation for this proposed language is unclear. Honeywell does not explain, for example, its derivation of the proposed 630-watt limitation.

<sup>26</sup> See *AES Order*, 7 FCC Rcd at 5898 ¶ 19.

<sup>27</sup> Honeywell, Rockwell Collins and Inmarsat support this action. See Honeywell Comments at 2-3, Rockwell Collins Comments at 3-4, Inmarsat Reply Comments at 1.

<sup>28</sup> Minimum Operational Performance Standards for Geosynchronous Orbit Aeronautical Mobile Satellite Services (AMSS) Avionics, Change No. 1 to RTCA/DO-210D (RTCA, Inc. 2000).

<sup>29</sup> Honeywell Comments at 3, Rockwell Collins Comments at 4. Note 5 specifies, with respect to the frequency bands 1610.6-1613.8 MHz, 1626.5-1660 MHz, and 1660-1660.5 MHz, that the specified attenuation level is not applicable to intermodulation products. Note 6 specifies that, with respect to the 1626.6-1660 MHz and 1660-1660.5 MHz bands, the upper limit for the excess power for any narrow-band spurious emission (excluding intermodulation products) within a 30 kHz measurement bandwidth shall be 10 dB above the power limit specified in the table.

<sup>30</sup> Honeywell Comments at 2-3, Rockwell Collins Comments at 4.

<sup>31</sup> Honeywell Comments at 4.

## 2. Expanding the Authorization of AMS(R)S

12 *Background* The Commission allocated spectrum for the Mobile Satellite Service (MSS)<sup>32</sup> in 1986, determining that MSS operations could share spectrum with AMS(R)S operations.<sup>33</sup> The Commission allocated the 1549.5-1558.5 MHz and 1651-1660 MHz bands on a co-primary basis to the MSS and AMS(R)S, but granted the AMS(R)S priority and real-time preemptive access to the spectrum.<sup>34</sup> The Commission also allocated the 1545-1549.5 MHz and 1646.5-1651 MHz bands to the AMS(R)S on a primary basis, with the MSS secondary in these bands.<sup>35</sup>

13 Presently, Part 87 governs use of the 1545-1559 MHz and 1646.5-1660.5 MHz bands for AMS(R)S.<sup>36</sup> However, spectrum also is allocated to AMS(R)S on a primary basis, both domestically and internationally, in the 1610-1626.5 MHz and 5000-5150 MHz bands.<sup>37</sup> The 1610-1626.5 MHz and 5000-5150 MHz bands are regulated under Part 25 of the Commission's Rules.<sup>38</sup> While Part 87 Rules and footnote US308 specify that AMS(R)S communications are to have priority and preemptive access over other MSS use in the 1549.5-1558.5 MHz and 1651-1660 MHz bands,<sup>39</sup> Part 25 does not provide such priority and preemptive access for AMS(R)S in the 1610-1626.5 MHz and 5000-5150 MHz bands.

14. In the *NPRM*, the Commission requested comment on whether use of the 1610-1626.5 MHz and 5000-5150 MHz bands for AMS(R)S should be authorized under Part 87.<sup>40</sup> The Commission stated that such an amendment would make the regulatory treatment and licensing of the 1610-1626.5 MHz and 5000-5150 MHz bands more consistent with the regulatory treatment and licensing of the 1646.5-1660.5 MHz band.<sup>41</sup> Further, the Commission sought comment on whether to provide for priority and real-time preemptive access for AMS(R)S in the 1610-1626.5 MHz and 5000-5150 MHz bands. In the *NPRM*, the Commission indicated that it was inclined against extending priority and real-time preemptive access to

<sup>32</sup> Mobile Satellite Service is a radio communication service between mobile earth stations and one or more space stations. See 47 C.F.R. § 2.1. A mobile earth station is an earth station intended for use while in motion or during halts at unspecified points. See 47 C.F.R. § 25.201.

<sup>33</sup> See Amendment of Parts 2 and 22 of the Commission's Rules Relative to Cellular Communications Systems, *Report and Order*, Gen. Docket Nos. 84-1231, 84-1233, 84-1234, 2 FCC Rcd 1825, 1844-45 ¶¶ 154-155 (1986) (*MSS Allocation Order*).

<sup>34</sup> The priority and real-time preemptive access accorded to the AMS(R)S in the 1549.5-1558.5 MHz and 1651-1660 MHz bands is reflected in footnote US308 to the Section 2.106 Table of Frequency Allocations. 47 C.F.R. § 2.106 n US308.

<sup>35</sup> See *MSS Allocation Order*, 2 FCC Rcd at 1844-45 ¶¶ 154-155 (1986).

<sup>36</sup> See 47 C.F.R. § 87.187(q). The 1545-1559 MHz band is allocated for space-to-Earth transmission, while the 1646.5-1660.5 MHz band is allocated for Earth-to-space transmission.

<sup>37</sup> See International Telecommunication Union *Radio Regulations*, Volume 1, Geneva, 2001, ISBN 92-61-09361-2 (ITU *Radio Regulations*) n.5.367, 47 C.F.R. § 2.106 n.5.367. While the 5150-5250 MHz band and the 15.4-15.7 GHz band had also been allocated domestically to AMS(R)S on a primary basis, the Commission deleted those AMS(R)S allocations in early 2002, following the recommendation of the 1995 World Radiocommunication Conference (WRC-95). See Amendment of Parts 2, 25 and 97 of the Commission's Rules with Regard to the Mobile-Satellite Service Above 1 GHz, *Report and Order*, ET Docket 98-142, 17 FCC Rcd 2658, 2660 ¶ 3 (2002).

<sup>38</sup> See 47 C.F.R. § 25.202(a).

<sup>39</sup> See 47 C.F.R. §§ 2.106 n US308, 87.187(q), 87.189(d).

<sup>40</sup> *NPRM*, 16 FCC Rcd at 19010 ¶ 11.

<sup>41</sup> *Id.*



the 1610-1626.5 MHz and 5000-5150 MHz bands because the ITU had not done so.<sup>42</sup>

15 *Discussion* At this time, we decline to amend the Rules to provide the additional AMS(R)S allotment in Part 87 or expand the reach of footnote US308. Although the commenters are in unanimous agreement that we should amend Part 87 to provide for the use of the 1610-1626.5 MHz and 5000-5150 MHz bands for AMS(R)S,<sup>43</sup> they are deeply divided on the question of whether we should extend the protections of priority and real-time preemptive access to AMS(R)S in those bands. The proponents of priority and real-time preemptive access – the FAA, ARINC/ATA, and Rockwell Collins – argue that the same safety considerations that support giving priority and preemptive access to AMS(R)S communications in the 1545-1559 MHz and 1646.5-1660.5 MHz bands militate in favor of doing likewise in the 1610-1626.5 MHz and 5000-5150 MHz bands.<sup>44</sup> On the other hand, Boeing and Globalstar contend that such a mandate is unnecessary and may be counterproductive, because intra-network priority and preemptive access for AMS(R)S communications can be achieved without a Commission mandate. Specifically, they suggest alternative means such as FAA regulations, RTCA standards, the ITU *Radio Regulations* or contractual arrangements.<sup>45</sup>

16. Subsequent to the adoption of the *Notice of Proposed Rule Making* in this proceeding, the Commission released a *Notice of Proposed Rule Making* in ET Docket No. 02-305,<sup>46</sup> in which it proposes to alter the existing MSS and AMS(R)S allocations in the 1545-1559 MHz and 1646.5-1660.5 MHz bands. Specifically, the Commission has proposed to establish a primary, generic MSS allocation in the bands 1545-1549.5 MHz, 1558.5-1559 MHz, 1646.5-1651 MHz, and 1660-1660.5 MHz, and to delete as superfluous the AMS(R)S allocations in the bands 1549.5-1558.5 MHz and 1651-1660 MHz.<sup>47</sup> Given the pendency of these proposals to alter the treatment of AMS(R)S in the L-band<sup>48</sup> under the Part 2 Table of Frequency Allocations, we believe it would be premature to create a new Part 87 designation for AMS(R)S in the 1610-1626.5 MHz and 5000-5150 MHz bands or to extend the protections of priority and preemptive access to AMS(R)S operations in those bands. The Commission indicated in the *NPRM* that it would consider adding an allocation for AMS(R)S in the 1610-1626.5 MHz and 5000-5150 MHz bands under Part 87 in order to make the regulatory treatment of AMS(R)S in these bands more consistent with the regulatory treatment of AMS(R)S in the L-band frequencies already covered by Part 87.<sup>49</sup> Accordingly, we believe it would be prudent to defer acting on this issue in this proceeding until a decision is reached in ET Docket No. 02-305 on whether those L-band allocations for AMS(R)S should be modified. When we again address this issue, it will be incumbent on the proponents of priority and preemptive access to clearly demonstrate why it is essential that AMS(R)S be accorded such enhanced

<sup>42</sup> *Id.* at 19010 n.24

<sup>43</sup> See ARINC/ATA Comments at 7-8, Boeing Comments at 5-7, FAA Comments at 1, 3, Globalstar Reply Comments at 3-8, Rockwell Collins Comments at 5

<sup>44</sup> FAA Comments at 1, 3, ARINC/ATA Comments at 7-8, Rockwell Collins Comments at 5

<sup>45</sup> Boeing Comments at 5-7, Globalstar Reply Comments at 3-8, Boeing Reply Comments at 2-6.

<sup>46</sup> Amendment of Parts 2, 25, and 87 of the Commission's Rules to Implement Decisions from World Radiocommunication Conferences Concerning Frequency Bands Between 28 MHz and 36 GHz and to Otherwise Update the Rules in this Frequency Range, *Notice of Proposed Rule Making*, ET Docket No. 02-305, 17 FCC Rcd 19756 (2002)

<sup>47</sup> *Id.*, 17 FCC Rcd at 19763 ¶¶ 17-18. The Commission has held that AMS(R)S may be provided in any frequency band in which there is an allocation for generic MSS since AMS(R)S is viewed as a subcategory of MSS. See 2 *GHz Band Order*, 15 FCC Rcd at 16154-55 ¶¶ 62, 64

<sup>48</sup> In the past, the L-band referred to the spectrum between 1 and 2 GHz. See *MSS Allocation Order*, 2 FCC Rcd at 1861 n.6. Here, however, references to the L-band are intended to cover only the bands allocated to AMS(R)S and/or MSS between 1545 MHz and 1660.5 MHz

<sup>49</sup> *NPRM*, 16 FCC Rcd at 19010 ¶ 11

access to the spectrum resource vis-à-vis other services

## B. Aeronautical Enroute Station Issues

17 *Background* Aeronautical enroute stations are used for air-ground operational control communications to aircraft along domestic or international air routes, and may not be used for public correspondence.<sup>50</sup> Airlines and other companies that maintain fleets of aircraft use these stations to satisfy certain FAA requirements. In the case of large trunk air carriers, these stations are used for maintaining reliable communications between each aircraft and the appropriate dispatch office. In the case of small airlines and large commercial aircraft operations, aeronautical enroute stations are used for maintaining flight-following systems.<sup>51</sup>

18 When commercial aviation was still in its infancy, it was recognized that there was not sufficient suitable spectrum available to allow each aviation organization to have its own chain of radio stations to provide aeronautical enroute coverage along its various air routes.<sup>52</sup> With encouragement from the Federal Radio Commission, early air transport companies adopted a plan calling for coordination and cooperation in the use of the available aeronautical enroute frequencies.<sup>53</sup> To implement that plan, ARINC was incorporated in 1929 as a private communications company dedicated to serving the air transport industry on a non-profit, cost-sharing basis.<sup>54</sup> ARINC is the licensee of all domestic network<sup>55</sup> aeronautical enroute stations in the continental United States

19. Section 87.261(c) of the Commission's Rules specifies that, except in Alaska, only one aeronautical enroute licensee may be authorized at any one location.<sup>56</sup> In 1981, the Commission affirmed the continuing validity of the rationale for this one-licensee-per-location rule. In this regard, the Commission noted that ARINC's stewardship of the aeronautical enroute spectrum provides a number of public benefits, including (1) cost-based rates, (2) better management of communications networks, (3) efficient spectrum use, and (4) incentives for research and development.<sup>57</sup> In the *1981 Order*, the Commission described a number of negative consequences that it believed would result from eliminating the one licensee per location rule, including reduced spectral efficiency, reduced usefulness of the industry database, greater difficulty in coordinating frequency assignments, increased congestion and interference, and greater difficulty in the planning and implementation of new techniques and

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<sup>50</sup> See 47 C.F.R. § 87.261(a)

<sup>51</sup> See 14 C.F.R. §§ 121.99, 121.125

<sup>52</sup> See Amendment of Part 87 to Clarify the Aeronautical Enroute Station Rules and Provide Two Additional Frequencies for Use by Small Aircraft Operating Agencies, *Report and Order*, PR Docket 80-243, 87 FCC 2d 382, 384 ¶ 9 (1981) (*Aeronautical Enroute Order* or *1981 Order*).

<sup>53</sup> *Id.*

<sup>54</sup> *Id.* ARINC's principal stockholders as well as principal customers are the U.S. scheduled airlines, but it provides its services to all aircraft operators, including foreign airlines, business entities and private individuals.

<sup>55</sup> Functionally, U.S. aeronautical enroute stations can be classified in two basic categories, network stations and local area stations. A network consists of a group of interconnected (via private lines and/or microwave circuits) enroute stations operating on the same frequency and serving a given flight route. Alternatively, numerous other licensed enroute stations sharing the same frequency band are not part of an enroute network; these off-net VHF stations provide local area service and are usually located at an airport.

<sup>56</sup> 47 C.F.R. § 87.261(c). In Alaska, one aeronautical enroute station licensee in the domestic service and one aeronautical enroute station licensee in the international service may be authorized at any one location. Location for the purposes of this rule is defined as "the area which can be adequately served by the particular station." *Id.*

<sup>57</sup> *Aeronautical Enroute Order*, 87 FCC 2d at 386 ¶ 16.

configurations<sup>58</sup>

20 In 1997, Société Internationale de Télécommunications Aéronautiques (SITA), which provides aeronautical enroute services in Europe, asked the Commission to consider whether the one-licensee-per-location limitation comports with U.S. policy in meeting our country's commitments under the World Trade Organization (WTO) Basic Telecommunications Agreement, which had been finalized earlier that year.<sup>59</sup> SITA noted that most countries impose no limitation on the number of aeronautical enroute licensees authorized per location. Further, it argued that allowing more than one aeronautical enroute licensee per location in the United States would introduce competition into the aeronautical enroute service market, producing a number of benefits.<sup>60</sup> The Commission declined to address SITA's request at that time, but stated that it would seek comment on this issue in a separate proceeding.<sup>61</sup>

21 In the *NPRM*, the Commission invited comment on whether Section 87.261(c) of the Commission's Rules should be amended to allow more than one aeronautical enroute licensee at a given location.<sup>62</sup> Commenters were asked to specifically address whether the introduction of competition into this service would create the benefits described by SITA in its 1997 pleadings, or whether allowing more than one licensee in the same location would produce the negative effects noted by the Commission in the *1981 Order*.<sup>63</sup>

22 *Discussion* We agree with ARINC/ATA that the current one-licensee-per-location limitation should remain intact. In this connection, we find it significant that the current rule has worked exceedingly well over the years, fostering safety, efficiency, competition, innovation and growth.<sup>64</sup> We further agree with ARINC/ATA that the one-licensee-per-location restriction is consistent with U.S. obligations under the WTO Basic Telecommunications Agreement. In this regard, we note ARINC's statement that it treats foreign operators the same as domestic service providers who seek to use ARINC-licensed frequencies for purpose of providing aeronautical enroute service.<sup>65</sup> Notably, it appears that ARINC already provides SITA with access to aeronautical enroute spectrum on an equitable basis.<sup>66</sup> Moreover, we continue to believe that the one-licensee-per-location rule permits coordination that provides for efficient sharing of the spectrum. As ARINC/ATA suggests, we are concerned that eliminating the rule may harm competition because it would provide incentives for warehousing frequencies, would impair long-term planning by the industry, and would not lower the cost of aeronautical enroute service since such service is already offered on a cost recovery basis.<sup>67</sup> We also find it decisionally significant that SITA, the only other commenter to address this issue, no longer is requesting repeal of the one-licensee-per-location limitation, but rather takes the position that "the Commission can allow the 'one licensee to a market' rule to remain in effect, so long as it explicitly

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<sup>58</sup> *Id.* at 386-87 ¶ 17.

<sup>59</sup> See Rules and Policies on Foreign Participation in the U.S. Telecommunications Market, *Report and Order and Order on Reconsideration*, 18 Docket 97-142, 12 FCC Rcd 23891, 23939 ¶ 110 (1997) (*WTO Proceeding*).

<sup>60</sup> See *NPRM*, 16 FCC Rcd at 19012 ¶ 15, and SITA pleadings cited therein.

<sup>61</sup> *WTO Proceeding*, 12 FCC Rcd at 23942 ¶ 118.

<sup>62</sup> *NPRM*, 16 FCC Rcd at 19013 ¶ 16.

<sup>63</sup> See *id.*

<sup>64</sup> ARINC/ATA Comments at 3-8, 14-17, ARINC/ATA Reply Comments at 4-5.

<sup>65</sup> ARINC/ATA Comments at 8-14.

<sup>66</sup> *Id.* at 11-12.

<sup>67</sup> *Id.* at 17-19.

assigns a frequency coordinator role to ARINC with specific nondiscrimination obligations.”<sup>68</sup>

23 We continue to believe that the public interest is served by maintaining the one-licensee-per-location limitation in the aeronautical enroute service. The spectrum scarcity that led to the promulgation of the one-licensee-per-location rule is still a reality in the aeronautical enroute service and, more broadly, in the Aviation Radio Service. The record indicates that central coordination of the aeronautical enroute spectrum by the civil aviation industry continues to offer significant benefits in terms of efficiency and innovation.

24 We decline to adopt SITA’s proposal to amend Section 87.261 to codify nondiscrimination requirements for ARINC<sup>69</sup> because we have not been presented with empirical evidence of any real-life problem that requires a regulatory response. We note that ARINC/ATA asserts, and SITA does not dispute, that ARINC has equitably facilitated the entry of competing enroute communications service providers, and has not rejected requests for access to the spectrum on grounds of unavailability.<sup>70</sup> SITA acknowledges that it has gained access to the U.S. market through the use of ARINC-licensed spectrum.<sup>71</sup> Given that SITA’s proposal appears to address a theoretical concern, we believe it unnecessary to amend the rule in response thereto. We nonetheless note our expectation that ARINC would continue to coordinate the aeronautical enroute spectrum in an equitable manner, without discrimination and on a cost recovery basis, and to endeavor to provide access to the spectrum to all who seek such access, to the extent technically feasible.<sup>72</sup> We would be very concerned if information came to us indicating that ARINC was departing from its historical practices with respect to providing reasonable nondiscriminatory access to the aeronautical enroute spectrum for which it is licensed. SITA, of course, may file a complaint with the Commission if it has objective information and/or evidence that ARINC is acting in a manner inconsistent with the Commission’s rules and policies, including those reiterated herein.<sup>73</sup> We reserve the discretion to revisit this issue should future developments so warrant.

<sup>68</sup> In its comments, SITA contends that, in addition to imposing specific nondiscrimination obligations on ARINC, the Commission should ensure that ARINC’s frequency coordination role is independent of its service provider operations by requiring Aeronautical Radio, Inc., the ARINC subsidiary that performs frequency coordination, to be governed by an independent Board of Directors consisting of aircraft operator representatives and excluding any representatives or officers of service providers that use aeronautical enroute spectrum. SITA Comments at 6. In its reply comments, however, SITA presses only for the codification of nondiscrimination obligations. See SITA Reply Comments at 2-6.

<sup>69</sup> *Id.*

<sup>70</sup> ARINC/ATA Comments at 8 (“Satisfying requests for new frequency assignments can require significant coordination efforts by ARINC, including changing existing frequency assignments, but all requests that satisfy the appropriate requirements are met.”)

<sup>71</sup> SITA Comments at 3 & n.6, SITA Reply Comments at 4.

<sup>72</sup> While SITA correctly notes that the Commission typically has imposed nondiscrimination requirements on frequency coordinators and band managers, it is also true that the Commission has not always codified those requirements. For example, nondiscrimination and other requirements for 700 MHz guard band managers were codified. See 47 C.F.R. § 27.603. However, nondiscrimination requirements for the frequency coordinators of Part 90 private land mobile radio services have not been codified, but were set forth as a non-codified policy in the text of a rulemaking order. See Frequency Coordination in the Private Land Mobile Radio Services, *Report and Order*, PR Docket No. 83-737, 103 FCC 2d 1093, 1101-02 ¶ 18 (1986), see also 47 C.F.R. § 90.175.

<sup>73</sup> See Establishment of Rules Governing Procedures to Be Followed When Informal Complaints Are Filed by Consumers Against Entities Regulated by the Commission, *Memorandum Opinion and Order and Notice of Proposed Rule Making*, CI Docket No. 02-32, 17 FCC Rcd 3919 (2002), see also 47 C.F.R. § 0.141. Alternatively, SITA could also seek redress through a petition for a declaratory ruling. See 47 C.F.R. § 1.2.

### C. Standards for Automatic Station Logs

25 *Background* Section 87.109 of the Commission's Rules provides that a station at a fixed location in the international aeronautical mobile service must maintain a written or automatic log in accordance with Paragraph 3.5, Volume II, Annex 10 of the ICAO Convention.<sup>74</sup> Annex 10 of the ICAO Convention contains specific guidelines only for written station logs, not computer-generated automatic station logs. In 2000, ARINC asked the Commission to clarify whether stations must maintain a separate "Sign In and Out Log" when utilizing automatic logs.<sup>75</sup> According to ARINC, a separate Sign In and Out Log is redundant because automated station logs electronically indicate radio operators as on and off at the position they work during a shift.<sup>76</sup>

26 In the *NPRM*, the Commission proposed, as a preliminary matter, to eliminate the specific reference to Paragraph 3.5, Volume II, Annex 10 of the ICAO Convention, and replace it with a more abbreviated reference to Annex 10 of the ICAO Convention. The Commission believed that removing the reference to the specific paragraph would minimize the effect on the Commission's Rules of changes to that specific paragraph.<sup>77</sup> In response to ARINC's request, the Commission also proposed to clarify that computer-generated automatic logs must contain the same information as written logs – the information required by Annex 10 of the ICAO Convention – except for the Sign In and Out portion of the log, and to further amend Section 87.109 to add a detailed description of the required information.<sup>78</sup> The Commission stated that such an approach would reduce confusion concerning the station log requirements and would promote increased use of automatic station logs.<sup>79</sup>

27. *Discussion* Based on our review of the record in this proceeding, we will adopt the amendments to Section 87.109 as proposed in the *NPRM*. ARINC/ATA, the sole commenter addressing these issues, agrees with the Commission's proposals to eliminate the reference to a specific paragraph in Annex 10 of the ICAO Convention and to specify that operators of automatic logs do not have to separately sign in and sign out in handwriting.<sup>80</sup> We agree with ARINC/ATA that operator signatures are unnecessary because the computer terminals at fixed aeronautical stations record all of the information required by Annex 10 (other than the operator's handwritten signature) plus an electronic log-on and log-off by the radio operator.<sup>81</sup> We believe that the rule changes we adopt today will simplify and clarify the application of the rule to station operators using automatic logs. We also believe these changes may encourage greater use of automatic logs, which we find to be in the public interest because of their efficiency, reliability, and accuracy. We also will amend Section 87.109 to provide a detailed and comprehensive list of the particular items of information required to be included in the logs.<sup>82</sup> While ARINC/ATA favors simply revising Section 87.109 to state "Automatic logs shall contain the information required of written logs except that no operator signature is required,"<sup>83</sup> we conclude that

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<sup>74</sup> 47 C.F.R. § 87.109

<sup>75</sup> Letter, dated August 17, 2000, from Jerry Wiles, Center Operation Manager, San Francisco ARINC, to FCC

<sup>76</sup> *Id.*

<sup>77</sup> *NPRM*, 16 FCC Rcd at 19013-14 ¶ 18

<sup>78</sup> *Id.* at 19014 ¶ 19

<sup>79</sup> *Id.* at 19014 ¶ 20

<sup>80</sup> ARINC/ATA Comments at 22-23

<sup>81</sup> *Id.* ARINC/ATA further points out that, at these automated stations, all voice communications with aircraft are taped, and all data communications are also recorded. *Id.*

<sup>82</sup> See § 87.109 in Appendix A, *infra*

<sup>83</sup> ARINC/ATA Comments at 22

listing the specific log requirements individually in Section 87.109 will avoid imposing a potentially burdensome responsibility on licensees to keep up-to-date with the ICAO requirements. Since these log requirements are not technical regulations, we expect that they will be revised infrequently. Therefore, any burden on the Commission to update the rule in response to the occasional ICAO changes should be minimal, and we believe the burden of monitoring changes to the ICAO requirements is better placed on the Commission than on individual licensees.

#### **D. Equipment Certification Issues**

##### **1. Accommodation of 8.33 kHz Channel Spacing Transmitters**

28 *Background.* In 1997, ICAO adopted a channel plan based on a 8.33 kHz channel bandwidth for Aeronautical Mobile (Route) Service (AM(R)S) communications in the 118-137 MHz band.<sup>84</sup> This move to a narrower bandwidth was intended to alleviate a shortage of very high frequency (VHF) air traffic control channels in Western Europe and the United Kingdom.<sup>85</sup> Eight countries implemented the 8.33 kHz channel plan in 1999,<sup>86</sup> and aircraft operating within the airspace of those eight countries must now be able to transmit and receive on 8.33 kHz channels. In the United States, however, aircraft transmitters may be certified only if they comply with Commission and FAA requirements, including the 25 kHz channelization specified in Part 87 for the VHF aeronautical frequencies.<sup>87</sup> Accordingly, waivers of Section 87.173(b) of the Commission's Rules are necessary to allow certification of any transmitter capable of operating on 8.33 kHz channels, including dual channel spacing transceivers, which are designed to operate on both 8.33 kHz channels and 25 kHz channels.<sup>88</sup>

29 In the *NPRM*, the Commission proposed to amend Section 87.137 of its Rules to permit certification of dual channel spacing transceivers to accommodate U.S.-registered aircraft flying to, from or within the eight nations that have implemented the 8.33 kHz channel plan.<sup>89</sup> The Commission tentatively concluded that such an amendment would promote air safety and operational efficiency, avoiding the need to resort to the administratively burdensome waiver process before approving the use of dual channel spacing transceivers that are necessary for reliable communication with air traffic controllers in the eight nations.<sup>90</sup> The Commission emphasized that use of 8.33 kHz channels for communications within the

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<sup>84</sup> See *International Standards and Recommended Practices, Aeronautical Telecommunications*, Annex 10 to the Convention on Civil Aviation, Vol. V, Aeronautical Radio Frequency Spectrum Utilization, Amendment No. 72, International Civil Aviation Organization, Montreal, 1997 (ISRP). Ordinarily, when the ICAO adopts International Standards and Recommended Practices, they are binding on the contracting countries. However, contracting countries were not required to implement 8.33 kHz channel bandwidths if their current channel spacing standards provide an adequate number of frequencies. ISRP at 6, ¶ 4.1.2.1. The United States continues to use 25 kHz channels.

<sup>85</sup> See *Plan for the 8.33 kHz Channel Spacing Implementation in Europe (8.33 kHz Spacing Plan)*, Edition 2.0, European Civil Aviation Conference, Dec. 2, 1996 at 2.

<sup>86</sup> The implementing countries are Austria, Belgium, France, Germany, Luxembourg, the Netherlands, Switzerland and the United Kingdom. *Id.*

<sup>87</sup> See 47 C.F.R. §§ 87.39 (specifying that aircraft transmitters will be approved by the Commission based on the technical requirements set forth in subpart D of Part 87), 87.145(a)-(b) (specifying that only certified transmitters meeting FCC and FAA requirements may be used), 87.173(b) (listing assignable VHF frequencies on the basis of 25 kHz channel spacing).

<sup>88</sup> See, e.g., Rockwell Collins, Inc., *Order*, 13 FCC Rcd 2954 (WTB PSPWD 1998); Wulfsberg Electronic Division, *Order*, 15 FCC Rcd 10992 (WTB PSWPD 2000).

<sup>89</sup> *NPRM*, 16 FCC Rcd at 19016 ¶ 24.

<sup>90</sup> *Id.*

National Airspace System (NAS)<sup>91</sup> would remain prohibited.<sup>92</sup>

30 The Commission also noted in the *NPRM* that, like Europe, the United States is experiencing a growing shortage of VHF air traffic control channels, and that the FAA is evaluating the use of VHF Data Link, Mode 3 (VDL-3), a new digital communications system plan that utilizes Time Division Multiple Access (TDMA) technology as an alternative to 8.33 kHz channelization, in order to allow more efficient use of the spectrum for domestic air travel.<sup>93</sup> The Commission sought comment on whether the Part 87 Rules should be amended to accommodate TDMA emissions in the VHF AM(R)S band.<sup>94</sup> As additional measures that could address the shortage of VHF air traffic control channels, the Commission also sought comment on whether to (a) allow the use of the 121.975-122.675 MHz band, which is currently designated for FAA flight service stations (FSS), for air traffic control on a secondary basis; and (b) allow the use of the 121.6-121.95 MHz band for general air traffic control communications, removing the present restriction limiting the use of these frequencies to ground control operations.<sup>95</sup> The Commission said that it did not anticipate major coordination problems stemming from adoption of these two proposals because both the primary and the secondary services would be under the FAA's management.<sup>96</sup>

31. *Discussion* Based on the record before us, we decide to amend our Rules to accommodate dual channel spacing transceivers that can communicate using 8.33 kHz channels as well as 25 kHz channels, subject to the proviso that the use of 8.33 kHz channels in domestic airspace remains strictly prohibited.<sup>97</sup> We agree with ARINC/ATA that this rule change will enhance the safety of U.S. aircraft that operate internationally.<sup>98</sup> In order to implement this proposal while maintaining a ban on the use of 8.33 kHz channels on domestic flights, we shall add to the types of emission permitted by Section 87.137, the emission designator 5K6A3E for emission class A3E with an authorized bandwidth of 8.33 kHz. In addition, rather than simply noting that emission designator 5K6A3E is authorized only for aircraft in international flight, as proposed in the *NPRM*,<sup>99</sup> we will add a footnote, based on the suggestions of the FAA and Boeing.<sup>100</sup> The footnote will state.

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<sup>91</sup> The NAS is the common network of U.S. airspace, air navigation facilities, equipment and services, airports or landing areas, aeronautical charts, information and services; rules, regulations and procedures, technical information, and manpower and material. This system includes system components shared jointly with the military. *Aeronautical Spectrum Planning for 1997-2010*, Doc. No. RTCA/DO-237 (1997).

<sup>92</sup> *NPRM*, 16 FCC Rcd at 19016 ¶ 25. We note that the Chief, Public Safety and Private Wireless Division, Wireless Telecommunications Bureau, has granted a waiver to Rockwell Collins so that it may obtain equipment certification of dual spacing transceivers, subject to the Commission's resolution of this issue in the instant rulemaking. See Rockwell Collins, Inc., Request for Waiver Concerning Certification of Aviation Transceivers Capable of Transmitting Outside the 108-137 MHz Civil Aviation Band and Waiver of Section 87.173(b) of the Commission's Rules Governing Assignable Carrier Frequencies in the Aviation Services, *Order*, 18 FCC Rcd 1509 (WTB PSPWD 2003).

<sup>93</sup> *NPRM*, 16 FCC Rcd at 19016 ¶ 26.

<sup>94</sup> *Id.*

<sup>95</sup> *Id.* at 19017 ¶ 27.

<sup>96</sup> *Id.*

<sup>97</sup> Accord FAA Comments at 1, 4, ARINC/ATA Comments at 24, Rockwell Collins Comments at 6, Boeing Comments at 11-13.

<sup>98</sup> ARINC/ATA Comments at 24.

<sup>99</sup> *NPRM*, 16 FCC Rcd at 19016 ¶ 24.

<sup>100</sup> FAA Comments at 4, Boeing Comments at 12-13. Because we are not generally authorizing 8.33 kHz channel spaced transmissions in U.S. airspace, we see no need to amend Section 87.133 of the Rules, 47 C.F.R. § 87.133, to

(continued ..)

In the band 117.975-137 MHz, the Commission will not authorize any 8.33 kHz channel spaced transmissions or the use of their associated emission designator within the U.S. National Airspace System, except by avionics equipment manufacturers and Flight Test Stations, which are required to perform installation and checkout of such radio systems prior to delivery to their customers for use outside U.S. controlled airspace. For transmitters certificated to tune to 8.33 kHz channel spacing as well as 25 kHz channel spacing, the authorized bandwidth is 8.33 kHz when tuned to an 8.33 kHz channel.

32. At this time, we decline to take further action to accommodate TDMA emissions. With respect to the issue of accommodating TDMA emissions in the VHF AM(R)S band, we note that in 2001 the Commission amended Sections 87.131, 87.133, 87.137, and 87.139 of its Rules<sup>101</sup> to accommodate digital communications systems, including TDMA systems, throughout the VHF aeronautical radio spectrum.<sup>102</sup> Specifically, in the *136-137 MHz Order*, the Commission permitted use of the emissions classes for phase modulation digital data transmission throughout the entire 117.975-137 MHz band,<sup>103</sup> primarily in order to accommodate deployment of VDL-3 by the FAA.<sup>104</sup> Commenters have not identified any additional measures they believe are needed to accommodate TDMA emissions.<sup>105</sup> Thus, on the basis of this record, we decline to take further action to accommodate TDMA emissions beyond the measures adopted in the *136-137 MHz Order*.<sup>106</sup>

33. Finally, we will amend our Rules to provide, as proposed in the *NPRM*, that (a) the FAA may use the 121.975-122.675 MHz band for air traffic control communications on a co-primary basis with

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specify a frequency tolerance for 8.33 kHz channel spacing transmitters, as proposed by Boeing. See Boeing Comments at 13. If 8.33 kHz channel spaced transmissions are authorized domestically in the future, we will address technical requirements for 8.33 kHz channel spaced transmitters at that time. In addition, we decline to adopt unrelated proposals to update Section 87.133 proposed by the FAA and Boeing. See FAA Comments at 11, Boeing Comments at 13 n. 26. However, we invite comment in the *FNPRM* on amending Section 87.133. See n. 320, *infra*.

<sup>101</sup> 47 C.F.R. §§ 87.131, 87.133, 87.137, 87.139.

<sup>102</sup> See Amendment of Parts 2 and 87 of the Commission's Rules to Accommodate Advanced Digital Communications in the 117.975-137 MHz Band and to Implement Flight Information Services in the 136-137 MHz Band, *Report and Order*, WT Docket No. 00-77, 16 FCC Rcd 8226, 8231-32 ¶¶ 13-14 (*136-137 MHz Order*), reconsideration granted in part, *Memorandum Opinion and Order*, WT Docket No. 00-77, 17 FCC Rcd 360 (2001).

<sup>103</sup> *136-137 MHz Order*, 16 FCC Rcd at 8232 ¶ 14.

<sup>104</sup> *Id.* However, the Commission determined not to designate the 136-136.475 MHz band or any other spectrum for VDL-3 use exclusively. The Commission reasoned that "placing no restrictions on the types of digital technologies that may operate in the 136-137 MHz band or, for that matter, the entire 117.975-137 MHz band will promote flexibility and efficiency during the transition to digital aviation communications systems." *Id.*

<sup>105</sup> See, e.g., FAA Comments at 1 (stating that the FAA favors accommodating TDMA emissions in the VHF AM(R)S band, but for VDL Modes 2 and 3 only), ARINC/ATA Comments at 23 (stating that "[i]f the FAA determines that further rule changes are needed to accommodate VDL Mode 3 for air traffic services," ARINC and ATA would support the adoption of such rules), Rockwell Collins Comments at 7 (stating that it supports accommodating TDMA emissions, but also believes the Commission could forego emission-by-emission determinations and simply "permit all waveforms as long as the transmitters meet the other applicable technical specifications").

<sup>106</sup> However, elsewhere we invite comment on a number of proposals by commenters regarding emission types, and we will therefore also invite further comment on the question of what, if any, additional rule amendments are required to fully accommodate VDL-3 and other systems employing TDMA technology. See ¶ 79, *infra*.



FAA flight service stations (FSS), and (b) the 121.6-121.95 MHz band may be used for general air traffic control communications. Both the FAA and ARINC/ATA support allowing the FAA to use the 121.975-122.675 MHz band for air traffic control as well as FSS.<sup>107</sup> In addition, the FAA also supports removing the restriction limiting the use of the sub-band 121.6-121.95 MHz to ground control communications so that it may be used for general air traffic control communications.<sup>108</sup> The FAA says removing the existing limitations on use of these frequencies will enhance the ability of the FAA to find frequencies for new requirements.<sup>109</sup> We agree that permitting the FAA to use the 121.975-122.675 MHz and 121.6-121.95 MHz frequencies for general air traffic control communications will serve the public interest by enhancing the FAA's flexibility to redistribute spectrum resources under its control in response to changing demand.<sup>110</sup> We note, however, that ARINC/ATA contends that any use of the 121.975-122.675 MHz band for air traffic control communications should be co-primary with, rather than secondary to, flight service station communications on these frequencies.<sup>111</sup> ARINC/ATA asserts that the ITU *Radio Regulations* as well as Annex 10 to the ICAO Convention prohibit air traffic control frequencies from being assigned on a secondary basis.<sup>112</sup> Given this concern, we think it appropriate to authorize FAA use of the 121.975-122.675 MHz band for air traffic control communications on a co-primary basis with FSS operations. Since these frequencies remain under exclusive FAA oversight, and the objective of these measures is to give the FAA greater discretion in managing these frequencies in response to changing operational needs, we conclude that according co-primary rather than secondary status to air traffic control communications in the 121.975-122.675 MHz band poses little risk of causing harmful interference to flight service station operations or creating a shortage of available spectrum for such operations.

## 2. Certification of Equipment for the Civil Reserve Air Fleet

34 *Background.* The Commission observed in the *NPRM* that aircraft of the Civil Reserve Air Fleet<sup>113</sup> or other civil aircraft may sometimes have a need to communicate with military facilities, which use frequencies outside of the civil aviation band, specifically in the 138-144 MHz and 150.05-150.8 MHz Government bands, and in the 148-149.9 MHz band, which is shared by Government and non-

<sup>107</sup> FAA Comments at 1, ARINC/ATA Comments at 20.

<sup>108</sup> FAA Comments at 1.

<sup>109</sup> *Id.*

<sup>110</sup> See Letter, dated February 10, 2003, from D'wana R. Terry, Chief, Public Safety and Private Wireless Division, Wireless Telecommunications Bureau, to Fredrick R. Wentland, Acting Associate Administrator, Office of Spectrum Management, National Telecommunications and Information Administration (granting waiver of Section 87.173 of the Commission's Rules to permit the FAA to use frequency 122.275 MHz for air traffic control communications, in order to reduce congestion on air traffic control channels).

<sup>111</sup> ARINC/ATA Comments at 20.

<sup>112</sup> *Id.* ARINC/ATA specifically notes that the *Radio Regulations* and Annex 10 specify that flight safety messages, which include air traffic movement and immediate operational control messages, can be secondary only to distress ("Mayday") urgency messages, or to radio direction finding. *Id.* (citing ITU Radio Reg. S44.1, ICAO Annex 10, vol. II, ¶ 5-1.8).

<sup>113</sup> The Civil Reserve Air Fleet is comprised of selected aircraft from U.S. airlines, which are contractually committed to support Department of Defense airlift requirements in national emergencies. The Civil Reserve Air Fleet has three main categories or segments: international, national and aeromedical evacuation. Assignment of aircraft to a particular segment depends on the nature of the requirement and the performance characteristics needed. See United States Air Force Fact Sheet on the Civil Reserve Air Fleet, at [http://www.af.mil/news/factsheets/Civil\\_Reserve\\_Air\\_Fleet.html](http://www.af.mil/news/factsheets/Civil_Reserve_Air_Fleet.html)

Government users.<sup>114</sup> Currently, however, VHF aviation transmitters can be certified under the Part 87 Rules only if they are designed to operate exclusively on frequencies in the civil aviation band.<sup>115</sup> Consequently, it has been necessary to grant waivers of the Commission's Rules to permit certification of aviation transmitters capable of operating in both the civil aviation band and the military radio bands.<sup>116</sup> Observing that requiring the use of waivers to obtain equipment certification is inefficient and resource-intensive, the Commission proposed in the *NPRM* to amend its Rules to allow the certification of radios that operate both inside and outside the civil aviation bands, with the qualification that Commission certification will only apply to use inside the civil aviation band.<sup>117</sup>

**35 Discussion** We will amend Section 87.147 of the Commission's Rules to provide for certification of equipment capable of operating in both the civil aviation band and the military radio bands.<sup>118</sup> We believe that adopting this measure will enhance air safety, most significantly by facilitating communications between civil aircraft and military air traffic controllers in emergencies.<sup>119</sup> The Commission has previously determined that the potential for misuse of these extended frequency range transceivers is slight, and that there is not a significant threat of interference from such transceivers.<sup>120</sup> Allowing this equipment to be authorized without requiring that it be subject to a waiver process will relieve both applicants and Commission staff of an unnecessary administrative burden, and will expedite the authorization process. We emphasize that this rule change addresses equipment certification only. As the Commission observed in the *NPRM*,<sup>121</sup> other agencies are responsible for granting authorization to operate outside of the civil aviation band, and nothing we do herein should be construed as authorizing operations outside of the civil aviation band in the United States under our Part 87 Rules

<sup>114</sup> *NPRM*, 16 FCC Rcd at 19017 ¶ 28. This may occur when the aircraft serve a military transport role in emergency conditions, or use military airfields in connection with the transport of "VIP" passengers, such as heads of state, or for emergency landings. *Id.*

<sup>115</sup> See 47 C.F.R. §§ 87.173(b), 87.475(b)(4)-(5).

<sup>116</sup> See, e.g., Rockwell Collins, Inc., *Order*, 14 FCC Rcd 3340, 3343 ¶ 6 (WTB PSPWD 1999).

<sup>117</sup> *NPRM*, 16 FCC Rcd at 19017 ¶ 29. We note that the Chief, Public Safety and Private Wireless Division, Wireless Telecommunications Bureau, has granted a waiver to Rockwell Collins so that it may obtain equipment certification of transceivers capable of transmitting on frequencies outside the civil aviation band, subject to the Commission's resolution of this issue in the instant rulemaking. See Rockwell Collins, Inc., *Request for Waiver Concerning Certification of Aviation Transceivers Capable of Transmitting Outside the 108-137 MHz Civil Aviation Band and Waiver of Section 87.173(b) of the Commission's Rules Governing Assignable Carrier Frequencies in the Aviation Services*, *Order*, 18 FCC Rcd 1509 (WTB PSPWD 2003).

<sup>118</sup> See Section 87.147(f) in Appendix A, *infra*. We will not require applicants to certify that the equipment is to be used for the Civil Reserve Air Fleet. Although we have titled this section of the *Report and Order* "Certification of Equipment for the Civil Reserve Air Fleet" to mirror the title of the relevant section in the *NPRM*, the Commission did not propose in the *NPRM* to limit authorization of extended frequency range transceivers to use in the Civil Reserve Air Fleet, and Rockwell Collins has not explained why it supports such a limitation. Although it is conceivable that such a restriction might reduce the risk of unauthorized transmissions outside the civil aviation band, we believe that such risk is slight. We intend to revisit this issue if future experience suggests that the Civil Reserve Air Fleet limitation may be warranted.

<sup>119</sup> See Rockwell Collins Comments at 8.

<sup>120</sup> See Rockwell Collins, Inc., *Order*, 14 FCC Rcd 3340, 3345 ¶ 10 (WTB PSPWD 1999); see also Rockwell Collins Comments at 7 (authorization of such extended frequency range transceivers will not cause harmful interference to other users of the 137-152 MHz band because aeronautical VHF communications are highly regulated and are restricted to communications with authorized ground stations, and flight crews are trained to select frequencies only from current published frequency tables, charts and databases).

<sup>121</sup> See *NPRM*, 16 FCC Rcd at 19017 ¶ 29.

### 3. Certification of Equipment Requiring an FAA Showing of Compatibility with the National Airspace System

36 *Background.* Under Section 87.147(d) of the Commission's Rules, an applicant seeking Commission certification of equipment that is intended to operate in any of the frequency bands specified in Section 87.147(d)(3) must notify the FAA of the filing of the certification application.<sup>122</sup> The applicant also must provide the FAA with detailed information about the equipment for which the certification is sought, and include a copy of the notification letter to the FAA with the application for Commission certification.<sup>123</sup> The rule further provides that the Commission will not act on the certification application for twenty-one days after the application is filed, in order to afford the FAA an opportunity to determine whether the equipment is compatible with the NAS.<sup>124</sup> If the FAA determines that the equipment is not compatible with the NAS, it can submit an objection to certification of the equipment.<sup>125</sup> In the *NPRM*, the Commission proposed to streamline this process by requiring equipment certification applications to include an FAA determination addressing the equipment's compatibility with the NAS.<sup>126</sup> The Commission tentatively concluded that requiring applicants to secure an FAA determination of the equipment's compatibility with the NAS before they file the application for FCC certification of the equipment would "provide applicants with increased participation in the certification process, streamline the certification process, reduce the FAA's and the Commission's administrative workload, and reduce the time necessary to obtain certification."<sup>127</sup>

37 *Discussion.* After consideration of the comments, we conclude that we should modify the current process and rules to eliminate the 21-day waiting period and to provide that the Commission will not act on an application until it receives an FAA determination of whether it objects to the subject equipment's certification. This solution addresses the interest of private sector commenters in avoiding any sequential review that might prolong the equipment certification process.<sup>128</sup> Our eliminating the twenty-one day period will not extend the process, because, contrary to what appears to be at least one commenter's understanding,<sup>129</sup> the rule prescribes a minimum waiting period before the Commission can act upon an application. It does not set a hard-and-fast deadline by which the FAA must comment on, or object to, the application. Further, it does not prevent the Commission from considering FAA comments or objections that are submitted more than twenty-one days after the application was filed, and it does not prevent the Commission from withholding a decision on the application until it does receive an affirmative representation from the FAA that the equipment is either compatible or incompatible with the NAS. In practice, the staff has observed a routine procedure of waiting until it first learns of the FAA's assessment before applications for equipment certification are granted. The fact that commenters apparently are generally pleased with the existing speed of processing such applications suggests that

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<sup>122</sup> 47 C.F.R. § 87.147(d).

<sup>123</sup> *Id.*

<sup>124</sup> 47 C.F.R. § 87.147(d)(2).

<sup>125</sup> *Id.*

<sup>126</sup> *NPRM*, 16 FCC Rcd at 19018 ¶ 31.

<sup>127</sup> *Id.*

<sup>128</sup> ARINC/ATA, Rockwell Collins, and Boeing argue that requiring sequential FAA and FCC review would not streamline the process, rather, it would prolong the certification process. ARINC/ATA Comments at 26; Rockwell Collins Comments at 8-9; Boeing Comments at 15-16. Rockwell Collins adds, "In an economy where getting products to market quickly is extremely important, allowing simultaneous review by the FAA and FCC will reduce the total time to processing an equipment certification application." Rockwell Collins Comments at 9.

<sup>129</sup> ARINC/ATA states that the twenty-one day period specified in Section 87.147(d)(2) ensures that applicants can reasonably estimate the amount of time the application process will take. ARINC/ATA Comments at 26.

continuation of the practice already followed by the staff should not be problematic.<sup>130</sup> In addition, our elimination of the twenty-one day waiting period removes an obstacle to potential speedier processing of some applications. We also believe that by clarifying what our practice has been in fact, and will continue to be, *i.e.*, to wait to hear from the FAA on the NAS compatibility question before acting on a certification application, we address the concern that prompted the FAA to support a change to the existing process.<sup>131</sup>

38 We will also amend 47 C.F.R. § 87.147(d)(3) to list additional particular frequency bands for which related equipment certification is subject to FAA notification. Section 87.147(d) requires that an applicant for certification of equipment intended for transmission in frequencies listed in Section 87.147(d)(3) notify the FAA of the filing of an equipment certification application.<sup>132</sup> Our amendment will ensure that all equipment designed to operate in the NAS is subject to FAA review for compatibility with the NAS.<sup>133</sup> Prior to this amendment, Section 87.147(d)(3) omitted several frequency bands that may be used for operation in the NAS from its list of frequency bands subject to the FAA review requirement.<sup>134</sup> The omission of these frequency bands from the existing rule was an oversight. We observe that no commenter opposed this FAA proposal.<sup>135</sup>

### **E. Amending License Terms of Non-Aircraft Stations**

39 *Background* In the *NPRM*, the Commission proposed to extend the license terms of non-aircraft station licenses in the Aviation Radio Service from five years to ten years.<sup>136</sup> The Commission reasoned that this would provide non-aircraft stations with the same license term as aircraft stations<sup>137</sup> and with similar stations in other services, would benefit licensees by effectively halving their application fees and the costs of filing license renewal applications, and would reduce the costs incurred by the Commission in processing renewal applications.<sup>138</sup>

40 *Discussion* We will extend the license term for non-aircraft stations to ten years, as proposed.<sup>139</sup> Extending the license term for non-aircraft stations to ten years is consistent with other

<sup>130</sup> See generally ARINC/ATA Comments at 26, Rockwell Collins Comments at 8-9, Boeing Comments at 15-16

<sup>131</sup> The FAA contends that a major drawback in the current process of simultaneous review of the equipment by the two agencies is the possibility of the FAA not receiving notification or otherwise becoming aware of the application to the FCC for certification. FAA Comments at 1, 4. It believes that the proposed revision of the process, if adopted, would address this problem. *Id.* at 1. The FAA adds that "[s]ince the FAA is to review each application in the subject frequency bands even under the current process, there should be no additional delay in processing and no additional burden to the FAA." *Id.* at 4.

<sup>132</sup> 47 C.F.R. § 87.147(d)

<sup>133</sup> See FAA Comments at 14-15

<sup>134</sup> The previously omitted frequency bands that are now being added to Section 87.147(d)(3) are 90-110 kHz, 190-285 kHz, 325-435 kHz and 1545-1559 MHz.

<sup>135</sup> It should be noted that we also believe that better coordination between the FCC and the FAA would improve the equipment certification process. Therefore, we intend, in consultation with the FAA, to begin exploring the feasibility of creating a data link between the agencies that would reduce our reliance on the applicants to provide timely notification to the FAA and perhaps automate the process by which the FAA provides its determinations of NAS compatibility to the Commission.

<sup>136</sup> *NPRM*, 16 FCC Rcd at 19018 ¶ 32.

<sup>137</sup> See 47 C.F.R. § 87.27(a).

<sup>138</sup> *NPRM*, 16 FCC Rcd at 19018 ¶ 32.

<sup>139</sup> ARINC/ATA supports extending the license term because it will reduce the administrative burden on licensees and the Commission of filing and processing renewal applications. ARINC/ATA Comments at 19. However, the  
(continued...)

Commission actions in recent years extending license terms in many services to ten years<sup>140</sup> In addition, we believe our action should provide some of the same types of public interest benefits – a more stable regulatory environment, incentives for investment in licensed facilities, additional flexibility for licensees, and reduced administrative burdens for licensees and the Commission alike – that warranted ten-year license terms in other services. It also promotes consistency in our licensing processes by conforming the license term of non-aircraft stations with that of aircraft stations<sup>141</sup> and coast stations, which provide service in the Maritime Radio Services that is functionally similar to that provided by non-aircraft stations in the Aviation Radio Service<sup>142</sup> The ten-year license term will apply prospectively to licenses issued or renewed after the effective date of the amended rule This action does not extend existing license terms, and thus does not affect the date by which incumbent licensees must file their next renewal applications.

#### F. Amending Construction Requirements of Non-Aircraft Stations

41 In the *NPRM*, the Commission proposed to extend the time – from eight months to one year – by which newly authorized unicom and radionavigation land stations must be placed in operation.<sup>143</sup> The Commission tentatively concluded that the longer construction period would reduce the number of requests for extensions of time to construct a station, and would otherwise simplify regulatory requirements applicable to these licensees while decreasing administrative burdens on both licensees and the Commission This approach, the Commission observed, also would be consistent with the Commission's recent actions regarding construction requirements in other services<sup>144</sup> We received no comments on this proposal Accordingly, we will adopt the proposal to amend Section 87.45 of the Rules<sup>145</sup> to extend the construction period for unicom stations and radionavigation land stations from eight months to one year We believe this action will not significantly delay the initiation of operations by newly authorized unicom stations and radionavigation land systems The new construction period has

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FAA opposes the proposal, recommending that the five-year license term be retained, perhaps with an adjustment to the licensing fee, but does not elaborate FAA Reply Comments at 1

<sup>140</sup> See, e.g., 1998 Biennial Regulatory Review – 47 C.F.R. Part 90 – Private Land Mobile Radio Services, *Report and Order and Further Notice of Proposed Rule Making*, WT Docket No. 98-182 and PR Docket No. 92-235, 15 FCC Rcd 16673, 16678 ¶ 10 (2000) (*Part 90 Biennial Review*) (extending the license term for all private land mobile radio licenses to ten years), Reorganization and Revision of Parts 1, 2, 21, and 94 of the Rules to Establish a New Part 101 Governing Terrestrial Microwave Fixed Radio Services, *Report and Order*, WT Docket No. 94-148 and CC Docket No. 93-2, 11 FCC Rcd 13449, 13459 ¶ 20 (1996) (extending the license term for all Part 101 fixed microwave service licenses to ten years), Amendment of Parts 80, 87 and 94 of the Commission's Rules Governing the Private Radio Services, *Report and Order*, PR Docket No. 93-39, 8 FCC Rcd 8716 ¶ 3 (1993) (extending the license term for ship and aircraft station licenses to ten years), Amendment of Part 95 of the Commission's Rules to Provide Regulatory Flexibility in the 218-219 MHz Service, *Report and Order and Memorandum Opinion and Order*, WT Docket No. 98-169, 15 FCC Rcd 1497, 1516 ¶ 27 (1999) (extending the license term for all 218-219 MHz Service licenses to ten years), Policy and Rules for the Direct Broadcast Satellite Service, *Report and Order*, IB Docket No. 98-21, 17 FCC Rcd 11331, 11351 ¶ 39 (2002) (extending the license term for non-broadcast Direct Broadcast Satellite Service licenses to ten years)

<sup>141</sup> See 47 C.F.R. § 87.27

<sup>142</sup> See 47 C.F.R. § 80.25(b) (as amended by Amendment of the Commission's Rules Concerning Maritime Communications, *Fourth Report and Order and Third Further Notice of Proposed Rule Making*, PR Docket No. 92-257, 15 FCC Rcd 22585 (2000) (*Maritime Fourth Report and Order*))

<sup>143</sup> *NPRM*, 16 FCC Rcd at 19018 ¶ 33 See 47 C.F.R. § 87.45 Radionavigation land stations are land stations that assist with navigation using radiodetermination See 47 C.F.R. § 87.5

<sup>144</sup> See *Part 90 Biennial Review*, 15 FCC Rcd at 16679 ¶ 12, *Maritime Fourth Report and Order*, 15 FCC Rcd at 22600 ¶ 27

<sup>145</sup> 47 C.F.R. § 87.45

prospective effect only, and does not extend the construction deadline for any existing licenses. Accordingly, the one-year construction period will apply only to unicom and radionavigation land licenses issued after the effective date of this rule amendment. An eight-month construction period still applies to all existing licenses and will continue to apply to all licenses issued before the effective date of this rule amendment. As before, licensees of unicom stations and radionavigation land stations who seek an extension of time to construct must meet the requirements set forth in Section 1.946 of the Commission's Rules.<sup>146</sup>

#### G. Additional Emission Types

42 *Background.* Emission type J2D<sup>147</sup> is not authorized under Part 87 of the Commission's Rules, but pursuant to a series of waivers, ARINC has been using it for enroute high frequency (HF) communications since 1996 to facilitate ARINC's participation in the development of a worldwide HF datalink system. Given the apparent absence of any problems stemming from these operations, the Commission proposed in the *NPRM* to add J2D as an acceptable data emission type for enroute HF communications.<sup>148</sup> The Commission reasoned that including J2D as an acceptable emission type would reduce the administrative burden of authorizing the use of J2D through waivers only, and would also facilitate implementation of the worldwide HF datalink system.<sup>149</sup> The Commission invited comment on this proposal and, more generally, on whether the Commission should continue to designate specific emission types on aviation frequencies that are not shared with other services, or instead allow licensees to utilize any emission type in these frequencies if the transmitters meet the other applicable technical specifications.<sup>150</sup>

43 *Discussion.* We will adopt the proposal to add J2D as a permissible emission type for enroute HF communications. We believe this action will enhance licensee flexibility, facilitate development and implementation of the worldwide HF datalink system, and promote administrative efficiency by obviating the need to resort to the waiver process in order to authorize use of J2D.<sup>151</sup> Since ARINC has been using J2D since 1996, we have empirical support for our conclusion that authorizing the use of this emission type under Part 87 will not result in harmful interference.<sup>152</sup> In addition, we note that all of the commenters addressing this proposal support it.

44 In addition to adding J2D, we will include the emission type A2D in Section 87.131 of the Commission's Rules<sup>153</sup> as an authorized emission type for VHF aeronautical enroute and fixed stations and for aircraft stations. As noted by ARINC/ATA,<sup>154</sup> this emission designator is already listed as a

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<sup>146</sup> 47 C.F.R. § 1.946.

<sup>147</sup> Acceptable emission types are set forth at 47 C.F.R. § 87.131 using codes defined at 47 C.F.R. § 2.201.

<sup>148</sup> *NPRM*, 16 FCC Rcd at 19019 ¶ 34.

<sup>149</sup> *Id.*

<sup>150</sup> *Id.*

<sup>151</sup> The FAA joins ARINC/ATA in supporting the addition of emission type J2D for HF operations. FAA Comments at 1, ARINC/ATA Comments at 25.

<sup>152</sup> See, e.g., Amendment of Section 90.20(e)(6) of the Commission's Rules to Revise the Authorized Duty Cycle on 173.075 MHz, *Report and Order*, WT Docket No. 01-97, 17 FCC Rcd 16938, 16944 ¶ 13 (2002) (amending Rules to permit increased duty cycle for stolen vehicle recovery systems, and noting that operations using the new duty cycle pursuant to waiver had produced no reports of interference).

<sup>153</sup> 47 C.F.R. § 87.131.

<sup>154</sup> ARINC/ATA Comments at 25.

permissible class of emission in Section 87.137(a) of the Rules.<sup>155</sup> We therefore view the addition of A2D to Section 87.131 as non-controversial. We take no action on ARINC/ATA's related suggestion to delete all references to emission type A9W as obsolete,<sup>156</sup> because we are not persuaded on this record that A9W is indeed obsolete and, in any event, we see no significant regulatory objective to be served by deletion of this emission type.

45 Rockwell Collins also recommends that the Commission abandon its existing approach of authorizing emission types one by one and simply include language "to permit all waveforms as long as the transmitters meet the other applicable technical specifications."<sup>157</sup> Rockwell Collins adds that if this approach is adopted, "the impacts of interference, particularly ultra-wideband interference ... that may raise the overall spectrum noise floor, [must] be clearly understood."<sup>158</sup> Inmarsat likewise favors amendment of the Part 87 Rules to authorize the use of any emission type if other requirements are met.<sup>159</sup> Eliminating the designation of specific emission types would, in Inmarsat's view, "accommodate the rapid advances in digital communications that result in the introduction of new emission types into satellite communications systems on a regular basis."<sup>160</sup> Although we believe there may be merit to this proposal, we also believe that the potential ramifications of this proposal for the interference environment in the VHF aeronautical spectrum counsel against its adoption on the basis of the current record. We believe the record should be augmented on the question of what additional technical specifications, if any, may be needed to ensure that the authorization of all emission types does not result in increased interference, especially interference to safety-related communications. We discuss this proposal further, and seek additional comment on it, in the *FNPRM*.<sup>161</sup>

## H. Removal of References to the Civil Air Patrol (CAP)

46 *Background.* Part 87 contains several references to the Civil Air Patrol (CAP).<sup>162</sup> In the *NPRM*, the Commission questioned whether it was necessary to retain these references. In this connection, it noted that, at present, there are no outstanding licenses for CAP stations, the Commission has no formal relationship with CAP (which is authorized by the Air Force and the National Telecommunications and Information Administration (NTIA)), and there is no apparent need to carve out special licensing provisions for CAP stations.<sup>163</sup>

47 *Discussion.* The FAA, the sole commenter to address this issue, supports deleting all Part 87 references to the CAP.<sup>164</sup> We conclude that, for the reasons stated in the *NPRM*, there is no continuing regulatory purpose to be served by maintaining the references to the CAP, and we will, therefore, delete them. Moreover, those frequencies that had been listed as CAP frequencies in Section 87.173(b) of our Rules will be reserved, and we request comment in the *FNPRM* on reallocating them for other Aviation

<sup>155</sup> 47 C.F.R. § 87.137.

<sup>156</sup> ARINC/ATA Comments at 25.

<sup>157</sup> Rockwell Collins Comments at 9.

<sup>158</sup> *Id.*

<sup>159</sup> Inmarsat Reply Comments at 1.

<sup>160</sup> *Id.*

<sup>161</sup> See ¶ 78, *infra*.

<sup>162</sup> Specifically, the CAP is the subject of Subpart R of Part 87, 47 C.F.R. §§ 87.501-87.503, and is also referenced in 47 C.F.R. §§ 87.5, 87.25(f), 87.133(c), 87.145(c), 87.169, 87.171, 87.173(b), and 95.655(a).

<sup>163</sup> *NPRM*, 16 FCC Rcd at 19019 ¶ 35.

<sup>164</sup> FAA Comments at 2.

Radio Service uses<sup>165</sup>

## 1. Addition of Station Class Codes

48 *Background.* The Part 87 Rules use two- or three-character codes to classify the different types of stations in the Aviation Radio Service.<sup>166</sup> In the *NPRM*, the Commission expressed a belief that it should update the station class codes to reflect advances in ground control technology and changes in airport procedures.<sup>167</sup> Specifically, the Commission proposed to add five additional station class codes.<sup>168</sup> (a) Remote Communications Outlet (RCO),<sup>169</sup> (b) Ground Communication Outlet (GCO),<sup>170</sup> (c) Ramp Control (RPC),<sup>171</sup> (d) RADAR/TEST (RLD),<sup>172</sup> and (e) Radio Navigation Land/DME (RNV).<sup>173</sup> The Commission reasoned that adding these five proposed new station class codes would have the Part 87 station classification scheme conform to terms of art used in the aviation community, increase the accuracy of its licensing database, and enable the Commission to better coordinate its licensing activities with the NTIA's Interdepartment Radio Advisory Committee (IRAC)<sup>174</sup> and the FAA by adding a greater level of detail to the coordination process.<sup>175</sup> In addition to seeking comment on the proposed new station class codes, the Commission solicited comment on the broader issue of whether it should eliminate station class codes from Part 87, and utilize them solely within the application process.<sup>176</sup> The Commission noted that such an approach is used for the Private Land Mobile Radio (PLMR) Services; although station class codes are employed in the filing and processing of PLMR applications, they are not codified in the Commission's Part 90 Rules. In the *NPRM*, the Commission tentatively concluded that removing the station class codes from Part 87 "would not only streamline our rules, but would also simplify the task of maintaining a technologically current list of station codes by allowing us to update or otherwise modify the station class code list as necessary without having to go through a formal rule making process each time."<sup>177</sup>

49 *Discussion.* We will add the five new station class codes proposed in the *NPRM*. Adding these five station class codes will permit greater precision in classifying and coordinating these stations.

<sup>165</sup> See ¶ 84, *infra*.

<sup>166</sup> The station class codes are listed in 47 C.F.R. § 87.171.

<sup>167</sup> *NPRM*, 16 FCC Rcd at 19019-20 ¶ 36.

<sup>168</sup> *Id.*

<sup>169</sup> An RCO is an unmanned communications facility remotely controlled by air traffic personnel.

<sup>170</sup> A GCO is an unstaffed, remotely controlled, ground-to-ground communications facility.

<sup>171</sup> An RPC is a facility specifically authorized to control the movement of aircraft in the defined ramp or apron area of an airport.

<sup>172</sup> An RLD is a land station operating radar or testing the operations of radar.

<sup>173</sup> An RNV is equipment (airborne and ground) used to measure the slant range distance from the Distance Measuring Equipment (DME) navigational aid.

<sup>174</sup> The IRAC is composed of representatives appointed by twenty-three member federal departments and agencies. A representative appointed by the Commission to serve in that capacity effects liaison between the IRAC and the FCC. The IRAC serves in an advisory capacity pertaining to the allocation, management, and use of the radio spectrum. The IRAC advises the Assistant Secretary for Communications and Information, U.S. Department of Commerce, and reports to the Deputy Associate Administrator, Office of Spectrum Management.

<sup>175</sup> *NPRM*, 16 FCC Rcd at 19020 ¶ 36.

<sup>176</sup> *Id.*

<sup>177</sup> *Id.*



We note that this proposal is unopposed by any commenter in the proceeding.<sup>178</sup> As proposed in the *NPRM*, we will begin licensing new stations using these new codes on the effective date of these rule changes, and will bring existing stations into conformance with these new station codes as we receive renewal or modification applications.<sup>179</sup> We decline at this time to adopt a new station class code for Universal Access Transceiver (UAT) stations, as proposed by the FAA, because we have determined to request further comment on the FAA and UPS proposals to authorize UAT operations on the frequency 978 MHz.<sup>180</sup> We will revisit this issue after reviewing the comments submitted in response to the *FNPRM*. We conclude, after further consideration of whether to remove station class codes from Part 87 and refer to them solely in the licensing process, that the station class codes should remain codified in Part 87.<sup>181</sup> The Commission suggested in the *NPRM* that removing the station class codes would both streamline Part 87 and facilitate future updating of the codes by obviating the need for rulemaking proceedings. However, for two reasons, we now believe that removing station class codes from Part 87 would actually add to the complexity of Part 87. First, the class codes provide a short-hand description of types of stations which would have to be replaced by a lengthier description of the stations if the codes are removed. Second, the frequency table in Section 87.173<sup>182</sup> would have to be expanded significantly to ensure clarity as to what types of stations are authorized on particular frequencies. Although removing the station class codes from Part 87 potentially would offer the advantage of avoiding a need to amend Part 87 whenever the class codes are changed, augmented or deleted, we believe that the overall balance of considerations favors keeping the class codes in Part 87.

#### J. Differential Global Positioning System (DGPS)

**50 Background.** The Global Positioning System (GPS) is a radio navigation system with global coverage that utilizes a constellation of twenty-four satellites to provide users, both military and civilian, with real-time location, velocity and timing information. DGPS represents an advancement of GPS technology that improves the positioning accuracy that can be obtained by GPS receivers, by adjusting for positioning errors caused by, for example, signal bounce or signal noise. DGPS uses fixed transmitting stations, which calculate differences in known locations with the position the GPS satellite system is indicating, and send this "differential" information via radio link to mobile units. DGPS can be provided from stations on the ground, through Ground Based Augmentation Systems (GBAS),<sup>183</sup> and via satellite, through Space Based Augmentation Systems (SBAS).<sup>184</sup> In 1999, at the FAA's request, the Commission

<sup>178</sup> The FAA supports adding the five proposed station class codes (FAA Reply Comments at 1), plus another new station class code or codes for Universal Access Transceiver (UAT) stations. FAA Comments at 15 (supporting multiple station class codes for ground, airborne, and vehicular UAT stations). As discussed in greater detail elsewhere, the FAA and UPS proposals to add UAT stations to the station class codes are made in conjunction with their proposals to amend the Rules to accommodate UAT operations on the frequency 978 MHz. See ¶ 77, *infra*.

<sup>179</sup> *NPRM*, 16 FCC Rcd at 19020 ¶ 36.

<sup>180</sup> See ¶ 77, *infra*.

<sup>181</sup> The FAA, joined by UPS, also supports removing station class codes from Part 87 and referring to them only in the licensing process. See FAA Comments at 15, *see also* UPS Comments at 3. The FAA also states in its comments that "Station Classes are an integral part of the Government Master File records and cannot totally be eliminated for ground stations. If the FCC provides the type of service on proposals for ground equipment ... the FAA can add the appropriate station class to the NTIA record." FAA Comments at 2.

<sup>182</sup> 47 C.F.R. § 87.173(b).

<sup>183</sup> The FAA operates a GBAS called a Local Area Augmentation System (LAAS), which provides aircraft with increased location accuracy (to within ten meters). LAAS transmitters are placed within airports to provide specific GPS correction information for the landing area.

<sup>184</sup> The FAA also operates an SBAS called a Wide Area Augmentation System (WAAS). WAAS is composed of 24 ground reference stations in the United States. The SBAS stations compute their GPS-derived locations and

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amended Part 87 of its Rules to authorize the operation of DGPS in the 112-118 MHz band.<sup>185</sup> In 2000, the NTIA permitted DGPS to be used by the Government for aircraft navigation on a primary basis in the 108-117.975 MHz, 1559-1610 MHz, and 5000-5150 MHz bands.<sup>186</sup> Later that year, the FAA petitioned the Commission to allow the use of DGPS throughout the 108-117.975 MHz band.<sup>187</sup>

51 In response to the earlier proposals and actions of the NTIA and the FAA, in the *NPRM*, the Commission proposed to add a new footnote, US343, to the Commission's Table of Frequency Allocations,<sup>188</sup> to read as follows

US343 Differential-Global-Positioning-System (DGPS) Stations may be authorized on a primary basis in the bands 108-117.975 MHz and 1559-1610 MHz for the specific purpose of transmitting DGPS information intended for aircraft navigation.<sup>189</sup>

The Commission further proposed to expand the authorization for DGPS from the 112-118 MHz band to the 108-117.975 MHz on a primary basis.<sup>190</sup> In addition, the Commission proposed to change the designation of DGPS as a developmental technology, and instead license DGPS systems on a routine non-developmental basis.<sup>191</sup> Although the Commission also proposed to authorize DGPS operations in the 1559-1610 MHz band,<sup>192</sup> it tentatively concluded in the *NPRM* that it should not authorize the use of DGPS in the 5000-5150 MHz band because the FAA has determined that DGPS use of the 5000-5150 MHz band is not technically feasible.<sup>193</sup>

52 *Discussion.* We believe that the widespread adoption of DGPS technology by the aviation community demonstrates that the developmental technology classification is no longer necessary,<sup>194</sup> and that it would serve the public interest to authorize DGPS operations on a non-developmental basis in the

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compare them with their surveyed locations. A master station receives the data and sends corrections to aircraft via INMARSAT satellites, over the L1 frequency used by GPS (1575.42 MHz).

<sup>185</sup> See Amendment of Part 87 of the Commission's Rules to Permit Automatic Operation of Aeronautical Advisory Stations (Unicom), *Report and Order*, WT Docket 96-1, 14 FCC Rcd 3722, 3730-31 ¶¶ 20-22 (1999); 47 C.F.R. 87.475(e). Licensees are also providing DGPS in this band pursuant to developmental authority. See 47 C.F.R. § 87.37.

<sup>186</sup> See NTIA's Manual of Regulations and Procedures for Federal Radio Frequency Management, January 2000 Edition, at 4-59, 4-94 (NTIA Manual).

<sup>187</sup> See Letter, dated September 19, 2000 from George K. Sakai, Program Director for Spectrum Policy and Management, FAA, to Magalie Roman Salas, Secretary, Federal Communications Commission.

<sup>188</sup> 47 U.S.C. § 2.106.

<sup>189</sup> *NPRM*, 16 FCC Rcd at 19021 ¶ 39. The Commission noted in the *NPRM* that a footnote of this kind is necessary because DGPS signals are data streams transmitted from either a fixed terrestrial location or from a satellite, while the 108-117.975 MHz band is allocated only to the Aeronautical Radionavigation Service. By definition, a data transmission is not considered a radionavigation application. Radionavigation must be accomplished by obtaining information by means of the propagation properties of radio waves. *Id.* at 19021 n.90 (citing 47 C.F.R. § 87.5).

<sup>190</sup> *Id.* at 19021-22 ¶ 40. Setting 118 MHz as the upper limit of the allocation constituted a rounding error which the Commission proposed to correct. *Id.*

<sup>191</sup> *Id.*

<sup>192</sup> *Id.* at 19022 ¶ 41.

<sup>193</sup> *Id.*

<sup>194</sup> See ARINC/ATA Comments at 21.

108-117 975 MHz and 1559-1610 MHz bands.<sup>195</sup> Authorizing DGPS operations in the 108-117 975 MHz and 1559-1610 MHz bands will promote aviation safety by permitting expanded use of the radio navigation technology that provides the most accurate positioning information.<sup>196</sup>

53 AFCCE, while supporting extension of the DGPS authorization to 108-112 MHz, recommends that the Commission mandate that the DGPS receivers operating in this spectrum be compliant with the ICAO standards.<sup>197</sup> AFFCE asserts that requiring compliance with the ICAO EMI requirements will promote safety. AFFCE and Hammett & Edison argue that without such a requirement, DGPS receivers will be more vulnerable to interference from FM and television broadcast stations, as a consequence of which the FAA may issue Air Navigation Hazard determinations that would lead to the Commission's denial of applications for new broadcast stations that would otherwise be in the public interest.<sup>198</sup> AFCCE and Hammett & Edison both propose that the Commission condition the extension of the DGPS authorization or otherwise take steps to require the FAA to change the computer model it uses to investigate broadcast-aviation electromagnetic compatibility issues, the Airspace Analysis Model (AAM), by incorporating the performance parameters of ICAO-compliant DGPS receivers.<sup>199</sup> The AAM needs to be changed, Hammett & Edison adds, because it already "grossly over-predicts interference" to Instrument Landing Systems (ILS) from FM broadcast stations due to the model's presumption of a "worst performing" aircraft receiver.<sup>200</sup> If the AAM were based on an ICAO-compliant receiver, Hammett & Edison posits, there would be an approximately 20 dB reduction in the projected EMI threat posed by the FM broadcast station. Hammett & Edison concludes that "the present FAA policy of basing its AAM on worst case aircraft radios results in unreasonable predictions of interference in modern receivers."<sup>201</sup>

54 After the comment period in this proceeding closed, the International Telecommunication Union (ITU) 2003 World Radiocommunication Conference (WRC-03) approved Resolution 413, titled "Use of the band 108-117 975 MHz by aeronautical services." The Resolution states, in relevant part, "that any additional aeronautical systems planned to operate in the frequency band 108-117.975 MHz shall as a minimum, meet the FM broadcasting immunity requirements contained in Annex 10 of the ICAO Convention on International Civil Aviation for existing aeronautical radionavigation systems operating in this frequency band."

55 Since the WRC has recognized the importance of compatibility between FM broadcasting systems and DGPS systems, and because we believe requiring compliance with the ICAO EMI requirements will promote safety, we adopt the ICAO immunity standards as required by Resolution 413.<sup>202</sup> Therefore, all DGPS receivers certified for use in the band 108-117 975 MHz must comply with

<sup>195</sup> The FAA and ARINC/ATA unequivocally support authorization of DGPS on a non-developmental basis in the 108-117.975 MHz and 1559-1610 MHz bands. FAA Comments at 2, ARINC/ATA Comments at 20-21.

<sup>196</sup> Inasmuch as none of the commenters has challenged the FAA's determination that use of the 5000-5150 MHz band for DGPS is technically infeasible, or otherwise commented on our tentative conclusion regarding this matter, we will not authorize the use of DGPS in the 5000-5150 MHz band at this time.

<sup>197</sup> AFFCE Comments at 2.

<sup>198</sup> *Id.* at 2-3; Hammett & Edison Comments at 2-4.

<sup>199</sup> AFCCE Comments at 3; Hammett & Edison Comments at 2-3.

<sup>200</sup> Hammett & Edison Comments at 3.

<sup>201</sup> *Id.* at 4.

<sup>202</sup> The NTIA also supports an FCC requirement that DGPS receivers meet the ICAO standards for EMI immunity. See Letter, dated Sept. 12, 2002, from Frederick R. Wentland, Associate Administrator, Office of Spectrum Management, NTIA, to Ed Thomas, Chief, Office of Engineering and Technology, FCC at 1.

the sensitivity and intermodulation immunity requirements contained in ICAO Annex 10 paragraphs 3.6.8.2.2.8.2 and 3.6.8.2.2.8.3.<sup>203</sup> We also believe this requirement will promote the spectrum efficiency benefits envisioned in the Spectrum Policy Task Force Report.<sup>204</sup> Due to the decreased likelihood of FM broadcast stations posing an interference threat to aviation communications, we believe that this decision will also ease the burden on new broadcast stations, as stated by AFCCE and Hammett & Edison.<sup>205</sup>

#### K. Aeronautical Advisory Station (Unicom) Issues

56 *Background* Section 87.215(b) of the Commission's Rules<sup>206</sup> specifies that only one unicom will be authorized at an uncontrolled airport, *i.e.*, an airport which does not have either a control tower,<sup>207</sup> a control tower remote communications outlet (RCO),<sup>208</sup> or an FAA flight service station (FSS).<sup>209</sup> At controlled airports, *i.e.*, airports that have a full-time control tower, RCO, or FSS, multiple licensees may be authorized, but must share a single frequency, 122.950 MHz,<sup>210</sup> and may not transmit information regarding runway conditions, wind, or weather during the hours of operation of the controlling facility.<sup>211</sup>

<sup>203</sup> See Convention on International Civil Aviation (Chicago, IL, 7 Dec 1944) Annex 10 Volume I paragraphs 3.6.8.2.2.8.2 and 3.6.8.2.2.8.3, as amended.

<sup>204</sup> See *Spectrum Policy Task Force Report*, ET Docket No. 02-135, November 15, 2002, *see also* Interference Immunity Performance Specifications for Radio Receivers, *Notice of Inquiry*, ET Docket No. 03-65, 18 FCC Rcd 6039 (2003) (indicating that the Commission may rely to a greater extent on receiver standards, including in some cases mandatory receiver standards, to facilitate greater access to the spectrum resource).

<sup>205</sup> The EMI immunity requirements for DGPS receivers will be codified in a new Section 87.151 of the Commission's Rules, 47 C.F.R. § 87.151. In addition, we are adding language to proposed footnote US343 to the Section 2.106 Table of Frequency Allocations to mandate that DGPS receivers comply with Resolution 413. Relatedly, we will add to the International column of the Table of Frequency Allocations for the bands 108-117.975 MHz and 1559-1610 MHz the pertinent international footnotes adopted at WRC-03: footnote 5.197A for the band 108-117.975 MHz, and footnote 5.328B for the band 1559-1610 MHz.

<sup>206</sup> 47 C.F.R. § 87.215(b).

<sup>207</sup> Control towers provide air traffic control services to aircraft landing on, taking off from, and taxiing at an airport, as well as aircraft transiting an airport's traffic area. 47 C.F.R. § 87.417(a).

<sup>208</sup> An RCO is an aeronautical radio station at a small uncontrolled airport located near a large airport with a control tower (a controlled airport). The RCO is connected via landlines to the control tower (or other FAA control facility), and enables the FAA to provide air traffic services to more airports and aircraft than would normally be served by the control facility alone. See Amendment of the Aviation Services Rules (Part 87) to Provide for the Licensing of Control Tower Remote Communications Outlet Stations at Airports Without Control Towers, *Order*, RM-6791, 5 FCC Rcd 4550 (1990).

<sup>209</sup> A flight service station is part of a network of stations providing weather briefings and information on flight facilities, and monitoring the navigational radio net. John F. Welch, ed., *Van Sickle's Modern Airmanship* 737 (1981).

<sup>210</sup> 47 C.F.R. § 87.217(a)(1).

<sup>211</sup> 47 C.F.R. § 87.213(b)(1). In addition, some airports that do have an RCO or flight service station (FSS) are subject to the one unicom-per-airport limitation. The purpose of Section 87.215(b) is to prevent the licensing of more than one unicom at an uncontrolled airport in the interest of public safety. Accordingly, the rule's statement that the limitation does not apply to airports that have a control tower, FSS, or RCO is interpreted to mean only that the limitation does not apply to airports with a control tower, FSS, or RCO that effectively controls traffic at that airport. An airport with an FSS or RCO may nonetheless be deemed uncontrolled if the facility does not have the capacity to issue common traffic advisories. Multiple licensees are permitted only at those airports where there is no need for a specified common traffic advisory frequency (CTAF) or the air traffic control facility frequency serves as the CTAF. At airports with a unicom frequency as the published CTAF, the one unicom per airport limitation applies, even if the airport has an FSS or RCO. See *Resort Aviation Services, Inc., Hearing Designation Order*, WT

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The vast majority of airports in the United States are uncontrolled airports,<sup>212</sup> where unicoms are often the only available source of this critical safety-related information, and where the one licensee-per-airport restriction is applicable.

57 In the *NPRM*, the Commission sought comment on a number of issues pertaining to unicoms. First, the Commission sought comment on whether its designation of unicom frequencies as either MA (all aircraft) or MA2 (private aircraft only) should be eliminated because the apparent reluctance of licensees to request an MA2 frequency may be causing congestion on the MA frequencies.<sup>213</sup> Second, the Commission sought comment on whether Section 87.217(a) of the Rules<sup>214</sup> should be amended to require, rather than permit, unicom applicants to identify a specific frequency for which they seek to be licensed, in order to prevent situations in which the channel that produces maximum geographic co-channel separation is not the most appropriate channel for the particular airport.<sup>215</sup> In such situations, the Commission observed, the applicant petitions the Commission for another frequency, a step that consumes both the airport's and the Commission's time and resources.<sup>216</sup>

58. Finally, the Commission requested comment on how to choose among mutually exclusive applicants competing for the single unicom license available at an uncontrolled airport.<sup>217</sup> Currently, mutually exclusive unicom applications are designated for comparative hearing, a process that the Commission views as "lengthy, expensive and inefficient."<sup>218</sup> The Commission noted that, under the Balanced Budget Act of 1997, it is required to use competitive bidding to resolve mutually exclusive applications for initial licenses, unless licenses are covered by an exemption set forth in the statute.<sup>219</sup> However, as the Commission further noted, the statute also provides that the Commission has an obligation to avoid mutual exclusivity in proceedings if it is in the public interest to do so, by employing engineering solutions, negotiations, threshold qualifications, service regulations, and other appropriate means.<sup>220</sup> In the *NPRM*, the Commission indicated that unicoms at uncontrolled airports provide services that contribute to the safety of life, health, and property, there is no alternative spectrum for the provision of these services, and a government entity is typically one of the applicants when there are mutually

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Docket No. 02-179, 17 FCC Rcd 12816, 12816 n 2 (WTB PSPWD 2002) (citing Reorganization and Revision of Part 87 of the Rules Governing the Aviation Services, *Notice of Proposed Rule Making*, PR Docket No. 87-214, 2 FCC Rcd 4069, 4070 ¶¶ 11-12 (1987))

<sup>212</sup> As of December 31, 2002, there were 19,572 airports in the United States. Control towers operated at 449 of these. There were 76 FAA flight service stations, of which 60 were automated flight service stations. FAA Administrator's Fact Book at 16, 34 (June 2003).

<sup>213</sup> *NPRM*, 16 FCC Rcd at 19023 ¶ 44.

<sup>214</sup> 47 C.F.R. § 87.217(a).

<sup>215</sup> *NPRM*, 16 FCC Rcd at 19023 ¶ 45.

<sup>216</sup> *Id.*

<sup>217</sup> *Id.* at 19023-25 ¶¶ 46-49.

<sup>218</sup> *Id.* at 19023 ¶ 46.

<sup>219</sup> *Id.* (citing 47 U.S.C. § 309(j)(2), Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended, *Report and Order and Further Notice of Proposed Rule Making*, WT Docket No. 99-87, 15 FCC Rcd 22709, 22715-17 ¶¶ 13-17 (2000) (*BBA Report and Order*)). Subsequent to the release of the *NPRM* in this proceeding, the Commission denied petitions for reconsideration of the *BBA Report and Order*. See Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended, *Memorandum Opinion and Order*, WT Docket No. 99-87, 17 FCC Rcd 7553 (2002), *petition for reconsideration pending*.

<sup>220</sup> 47 U.S.C. § 309(j)(6)(E).

exclusive unicom applications.<sup>221</sup> The *NPRM* therefore tentatively concluded that it would serve the public interest to adopt a licensing scheme that avoids mutually exclusive unicom applications, at least where government entities are involved.<sup>222</sup> The *NPRM* offered the following possible alternatives for avoiding mutual exclusivity: licensing on a first-come, first-served basis; providing a preference for airport owners; and providing incumbent unicom licensees with a renewal expectancy.<sup>223</sup>

59. *Discussion* We will eliminate the MA/MA2 dichotomy for unicom licenses, and will require unicom applicants to specify the particular frequencies that they seek.<sup>224</sup> We believe that the MA/MA2 distinction no longer serves any significant regulatory objective. Further, our licensing experience indicates that classifying unicom frequencies as MA or MA2 is counterproductive. We believe that allowing all unicom frequencies to be used for all aircraft will provide more flexibility in the assignment of frequencies. Further, having unicom applicants specify a particular frequency also will increase applicants' flexibility. The Universal Licensing System<sup>225</sup> requires that applicants do so, and it has been the experience of our licensing staff that this procedure is more efficient, and has reduced the administrative burden on licensees and the Commission. Accordingly, elimination of the MA/MA2 dichotomy for unicom licenses is appropriate, as is our requiring unicom applicants to specify a particular frequency that they seek.

60. Given that unicom stations provide vital safety-related information to pilots at uncontrolled airports, we believe that they should be licensed on the basis of public safety criteria. Moreover, the public safety function of unicom suggests that the use of competitive bidding procedures would not be appropriate for unicom<sup>226</sup> because of the lag time that would result between the time an incumbent licensee terminates service and the time when a new licensee is selected (*i.e.*, after an auction is scheduled and conducted).<sup>227</sup> In addition, the fact that mutual exclusivity in the unicom context typically involves a government entity competing against a private company further militates against reliance on competitive bidding procedures to select licensees.

<sup>221</sup> *NPRM*, 16 FCC Rcd at 19024 ¶ 48.

<sup>222</sup> *Id.*

<sup>223</sup> *Id.* at 19024 ¶ 49.

<sup>224</sup> ARINC/ATA argues that the congestion in the unicom frequencies stems primarily from the desire of unicom licensees and general aviation aircraft to operate on 100-kHz channels. ARINC/ATA Comments at 29. Both ARINC/ATA and the FAA believe that the answer to the frequency congestion problem is for the Commission to apply its existing rules to ensure that unicom frequencies are assigned with proper geographic separation. *Id.*, FAA Comments at 2.

<sup>225</sup> The Universal Licensing System, or ULS, is the Commission's electronic, interactive licensing system and database for wireless radio services. See Amendment of Parts 0, 1, 12, 22, 24, 26, 27, 80, 87, 90, 95, 97, and 101 of the Commission's Rules to Facilitate the Development and Use of the Universal Licensing System in the Wireless Telecommunications Services, *Report and Order*, WT Docket No. 98-20, 13 FCC Rcd 21027 (1998), *recon.* 14 FCC Rcd 11476 (1999).

<sup>226</sup> While the FAA, ARINC/ATA, and Boeing all oppose the use of competitive bidding procedures to license unicom, (FAA Comments at 2, ARINC/ATA Comments at 27-28, Boeing Comments at 16-20), they disagree on the licensing procedures that should be adopted in lieu of competitive bidding.

<sup>227</sup> Cf. Amendment of the Commission's Rules Concerning Maritime Communications, *Second Memorandum Opinion and Order and Fifth Report and Order*, PR Docket No. 92-257, 17 FCC Rcd 6685, 6712 ¶ 59 (2002) (Coast Guard opposes use of competitive bidding to assign high seas public coast station frequencies because of, *inter alia*, the possible delay in licensing a replacement if a licensee discontinues operations). This is so even though the Rules provide for licensing of unicom stations on an interim basis during the period after a unicom has been abandoned or ceased operating and before a new licensee is selected through the normal licensing process. See 47 C.F.R. § 87.215(c). There is no assurance that any party would be willing and able to operate the station on a stop-gap basis without assurance that it would ultimately win the regular license at auction.

61 The FAA believes that the hearing process remains a preferable means of choosing among mutually exclusive unicom applicants because competitive bidding is not a proper means of determining the licensee of a safety of life service.<sup>228</sup> However, we continue to believe that designating competing unicom applications for hearing is inefficient, time-consuming, costly, and unnecessary.

62 We decide to employ a system of preferences to avoid the problems that arise from mutual exclusivity. First, we will grant incumbent licensees a renewal expectancy that can be overcome only if a petitioner to deny license renewal can demonstrate that the licensee's performance has been inadequate. We reject Boeing's suggestion that renewal expectancies are not appropriate for unicom.<sup>229</sup> We believe that granting renewal expectancies in this context has significant public interest benefits, such as promoting stability, licensee investment and long-term planning, which have been bases for the use of renewal expectancies in other contexts.<sup>230</sup> For this service, however, we will not require the renewal applicant to submit any showing in the absence of any pleadings opposing the renewal. Unless a petition to deny a license renewal is filed within thirty days of the filing of the renewal application, the renewal expectancy will vest, and the renewal application will be granted.<sup>231</sup> We anticipate that renewal applications will generally be challenged only when a government entity is dissatisfied with the performance of the incumbent licensee, since, as discussed below, only the government entity (or its designee) will be eligible for licensing if the challenge is successful and the license became available. Accordingly, challenges should be relatively infrequent, and should occur not because of commercial considerations, but because of safety concerns.<sup>232</sup>

63. We will limit eligibility for new unicom licenses to government entities or their designees.<sup>233</sup>

<sup>228</sup> FAA Comments at 2

<sup>229</sup> Boeing Comments at 21 n 45

<sup>230</sup> See, e.g., Amendments to Parts 1, 2, 27 and 90 of the Commission's Rules to License Services in the 216-220 MHz, 1390-1395 MHz, 1427-1429 MHz, 1429-1432 MHz, 1432-1435 MHz, 1670-1675 MHz, and 2385-2390 MHz Government Transfer Bands, *Report and Order*, WT Docket No. 02-8, 17 FCC Rcd 9980, 10008 ¶ 69 (establishing renewal expectancy for licensees operating in the spectrum transferred from Government to non-Government use); Amendment of the Commission's Rules Regarding the 37.0-38.6 GHz and 38.6-40.0 GHz Bands, *Report and Order and Second Notice of Proposed Rulemaking*, ET Docket No. 95-183, PP Docket No. 93-253, 12 FCC Rcd 18600, 18626 ¶ 49 (1997) (establishing renewal expectancy for 39 GHz licensees); Amendment of the Commission's Rules to Establish New Personal Communications Services, *Second Report and Order*, GEN Docket No. 90-314, 8 FCC Rcd 7700, 7753 ¶ 130 (1993) (establishing renewal expectancy for PCS licensees)

<sup>231</sup> We will continue to require a renewal applicant to provide notice of the application to the owner of the airport and to all aviation service organizations located at the airport. See 47 C.F.R. § 87.215(d).

<sup>232</sup> In the event of a challenge, a hearing will be designated to determine whether the licensee has complied with the Commission's Rules and has provided "substantial service," which we define as service that is "sound, favorable, and substantially above a level of mediocre service which might just minimally warrant renewal." Thus "substantial service" showing, as we define it here, has been used in other services. See e.g., 47 C.F.R. § 101.1011(a) (establishing that a renewal expectancy for a Local Multipoint Distribution Service licensee hinges on the licensee's ability to demonstrate substantial service). This determination will be made by reference to the criteria that are now used in comparative hearings for unicom licenses, including: (1) location of the station in relation to the landing area and traffic patterns, (2) hours of operation, (3) personnel available to provide unicom service; (4) experience of applicant and employees in aviation and aviation communications, (5) ability to provide information pertaining to primary and secondary communications as specified in § 87.257 of the Commission's Rules, 47 C.F.R. § 87.257, (6) proposed radio system including control and dispatch points, and (7) the availability of the radio facilities to other fixed-based operators. See, e.g., *Resort Aviation Services, Inc., Hearing Designation Order*, WT Docket No. 02-179, 17 FCC Rcd 12816 (WTB PSPWD 2002)

<sup>233</sup> ARINC/ATA supports reserving unicom frequencies at uncontrolled airports for municipalities and other government entities. ARINC/ATA Comments at 29. Similarly, Boeing favors according a preference to government and quasi-government entities. Boeing Comments at 21

This public service eligibility nexus will ensure that new licensees have a vested interest in public safety, and will maximize the possibility that adequate ongoing resources will be made available for operating unicom stations in a manner that promotes public safety. Indeed, we anticipate that many, if not most, new licensees will be state or local government agencies with a public safety mission. For purposes of this requirement, the definition of eligible entities will follow the language of Section 337(f)(1)(B) of the Communications Act, which defines a class of eligible entities as “(i) State or local government entities, or (ii) . . . nongovernmental organizations that are authorized by a governmental entity whose primary mission is the provision of [public safety] services . . .”<sup>234</sup> This licensing system does not preclude a private sector entity, by virtue of its private sector status, from acquiring a new unicom license;<sup>235</sup> however, it will be able to do so only with the appropriate designation by the relevant state or local government agency.<sup>236</sup>

64. The licensing scheme that we adopt here has several virtues. It will be simple to administer, avoids mutual exclusivity, should keep churn in licensees at low levels, provides certainty, encourages investment in unicom stations, and, most importantly, provides for the selection of licensees in a manner that promotes air safety. We believe that government entities or their private sector entity designees have the incentives and access to resources that can best ensure that aviation safety is the paramount focus in unicom station operations. However, by the same token, we see no reason to oust incumbent licensees who have performed satisfactorily in the view of governmental authorities. Accordingly, our licensing rules will permit such incumbent licensees to retain their licenses unless and until some other party successfully challenges the adequacy of their respective performance as unicom licensees.

65. We decline to adopt a rule to provide a license preference for an airport owner in situations in which no government entity applies for the license.<sup>237</sup> We believe such a preference is unnecessary given that airport owners can be designated to be the license applicant by a government entity.<sup>238</sup> We also decline to adopt a requirement for applicants to agree to a sharing mechanism in situations in which licensing preferences cannot resolve problems posed by applications having mutual exclusivity.<sup>239</sup> Although Boeing suggests that such applicants develop a sharing proposal without Commission involvement, we are nevertheless concerned that the Commission would have to become involved in the

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<sup>234</sup> See 47 U.S.C. § 337(f)(1)(B). In keeping with the statutory meaning, we will treat as public safety services for this purpose those services the sole or principal purpose of which is to protect the safety of life, health, or property. See 47 U.S.C. § 337(f)(1)(A).

<sup>235</sup> In keeping with this eligibility restriction, incumbent licensees will be permitted to assign their licenses only to either government entities or their respective designees. In addition, applications that are pending when our new requirements take effect and which do not meet our new eligibility criteria, will be dismissed. Any such applicant whose application has been designated for hearing may obtain a refund of its hearing fee. See 47 C.F.R. § 1.1113(b).

<sup>236</sup> In certain situations, we will consider requests for waivers of the requirement that a private sector applicant be designated by a government entity. Such consideration will be given in circumstances in which the private sector applicant can demonstrate convincingly that there is no relevant government entity from which it can obtain such a designation, or there are other practical difficulties to securing such a designation, or the waiver is otherwise warranted under Section 1.925 of the Commission's Rules, 47 C.F.R. § 1.925. We would consider there to be practical difficulties potentially warranting a waiver if the applicant can demonstrate, for example, that obtaining designation from a government entity would be prohibitively costly or would take too long. We do not here attempt to catalog exhaustively all the types of practical difficulties that may warrant waiver relief; we will review all waiver requests on a case-by-case basis, considering the particular circumstances of each case.

<sup>237</sup> See Boeing Comments at 21.

<sup>238</sup> We note, moreover, that airport owners are in many cases government entities.

<sup>239</sup> See Boeing Comments at 21. In any event, we believe that the licensing rules we adopt here preclude mutual exclusivity in the unicom licensing process.



details of the agreement in order to ensure consistency with the policy behind the one-unicom-station-per-airport restriction, or otherwise would have to routinely intervene to resolve disputes between applicants in such situations. The rules we adopt avoid this possibility.

#### L. South San Diego Uncontrolled Airspace Corridor Group

66 *Background.* The Commission has granted a general aviation special temporary authority (STA) to the South San Diego Uncontrolled Airspace Corridor Group<sup>240</sup> authorizing the use of the frequency 121.95 MHz for air-to-ground and air-to-air communications for aircraft up to 13,000 feet above mean sea level between Imperial Beach, California and Tecate, Mexico.<sup>241</sup> This STA authorizes aircraft involved in parachute jump activities within the defined area to use 121.95 MHz to communicate position and safety information. The STA was granted because of the large amount of air traffic in this area, comprised in large part of air traffic generated by the activities of military, and other Federal Government and local government entities, and the resultant spectrum congestion. An STA is temporary in nature,<sup>242</sup> yet the conditions that created the need for this STA are not temporary. Therefore, the Commission proposed in the *NPRM* to codify the terms of the STA in Section 87.187 of the Rules,<sup>243</sup> authorizing for an indefinite duration the use of 121.95 MHz for air-to-ground and air-to-air communications for aircraft up to 13,000 feet above mean sea level between Imperial Beach, California and Tecate, Mexico.<sup>244</sup>

67. *Discussion.* We will amend Section 87.187 to codify the terms of the STA granted to the South San Diego Uncontrolled Airspace Corridor Group. The only commenter addressing this proposal, the FAA, supports it.<sup>245</sup> As noted, the congestion in this area, and the consequent need to use the 121.95 MHz frequency for position and other safety communication information, is not expected to end in the near term. Adopting this rule change, therefore, will provide greater certainty to the South San Diego Uncontrolled Airspace Corridor Group and relieve it of the burden of filing repeated requests for extensions of the STA or for new STAs. It will likewise relieve the Commission of the burden of repeatedly processing such STA requests. We note that this action is consistent with our prior actions codifying area-specific provisions in Section 87.187.<sup>246</sup>

<sup>240</sup> The South San Diego Uncontrolled Airspace Corridor Group consists of Government and non-Government entities who share a common concern regarding air safety in this area.

<sup>241</sup> See Letter, dated January 25, 2000, from FCC to Jeff Stone, Aviation Safety Manager, Air Operations Branch, U.S. Customs Service, San Diego, California. The geographical area is defined as "Airspace located south of the San Diego Class B between Imperial Beach and Tecate:

32-35-00 N 117-12-00 W to

32-42-00 N 116-56-00 W. to

32-41-00 N 116-41-00 W. to

32-35-00 N 116-38-00 W to

32-31-00 N 117-11-00 W. and return."

<sup>242</sup> See 47 C.F.R. § 1.931.

<sup>243</sup> 47 C.F.R. § 87.187

<sup>244</sup> *NPRM*, 16 FCC Rcd at 19025 ¶ 50

<sup>245</sup> FAA Comments at 2

<sup>246</sup> See, e.g., § 87.187(bb), (cc)

### M. Charter Aircraft Call Signs

68. *Background* A “wet lease” is an arrangement by which the lessor agrees to provide an entire aircraft and at least one crewmember to the lessee.<sup>247</sup> Some U S air carriers lease their aircraft to other carriers, both domestic and foreign, under the provisions of wet lease agreements governed by the FAA.<sup>248</sup> Some wet lease agreements specify that the lessor will not use its own name or call sign in communications transmissions, but rather the name and call sign of the lessee, because the aircraft will be traveling in the airspace of a foreign country for which the owner/licensee does not have operating authority. Section 87.107 of the Commission’s Rules sets forth the station identification requirements for aircraft stations, and it specifies that the station identification used in transmissions be either the call sign assigned by the FCC to the carrier or the registered number of the aircraft.<sup>249</sup> Section 87.107 makes no exception for aircraft operated under wet lease agreements. Noting that wet lease agreements “represent a prevalent industry practice,” the Commission proposed in the *NPRM* to allow a lessee to create a temporary call sign using the lessee’s carrier call sign followed by the suffix “WLA,” denoting that this aircraft is owned by another carrier.<sup>250</sup>

69. *Discussion.* The FAA is the only commenter to address this proposal, and it opposes authorizing temporary call signs for aircraft operated under wet lease agreements because the use of such temporary call signs could “hinder identification of the operator.”<sup>251</sup> Given the FAA’s opposition and the absence in the record of any indication that the inability to acquire temporary call signs for aircraft operated under wet lease arrangements is a problem for any industry segment, we will not adopt this proposal.

### N. Additional Issues

70. In the *NPRM*, the Commission also invited comment on the following issues: (1) how to better inform the aviation community regarding the scope of authority provided by an FCC station license;<sup>252</sup> (2) licensing ultralight aircraft;<sup>253</sup> (3) a proposal to add a designation for radiobeacons in the 525-535 kHz band;<sup>254</sup> and (4) a proposal to authorize, by rule, ground testing of Traffic Alert and Collision Avoidance Systems (TCAS) on 1090 MHz.<sup>255</sup> We discuss each of these issues, as well as nonsubstantive editorial changes recommended by commenters, in turn below.

#### 1. Informing the Aviation Community About the Legal Limits of an Aircraft License

71. The Commission sought comment, especially from small entities, on how to better inform the aviation community of the specific authority conveyed by an FCC-issued aircraft license, because there has appeared to be some confusion on this subject within certain segments of that community.<sup>256</sup> The

<sup>247</sup> See 14 C.F.R. § 119.3.

<sup>248</sup> See 14 C.F.R. § 119.53.

<sup>249</sup> 47 C.F.R. § 87.107.

<sup>250</sup> *NPRM*, 16 FCC Rcd at 19026 ¶ 51.

<sup>251</sup> FAA Reply Comments at 1.

<sup>252</sup> *NPRM*, 16 FCC Rcd at 19026 ¶ 54.

<sup>253</sup> *Id.* at 19026 ¶ 55.

<sup>254</sup> *Id.* at 19026-27 ¶ 56.

<sup>255</sup> *Id.* at 19027 ¶ 57.

<sup>256</sup> *Id.* at 19026 ¶ 54.

only responsive comment was from the FAA, which suggested that the Commission require placement of "a permanent placard on the unit clearly visible to the user indicating that the radio can only be used in accordance with the provisions of Part 87 of the Commission's Rules."<sup>257</sup> We will not implement the FAA's placard suggestion at this time because (1) there is no information in the record on the potential costs of compliance with such a requirement, and (2) we believe that disseminating information on our web site and/or through public notices will be adequate to address this matter. We encourage the Wireless Telecommunications Bureau to use those tools, and such other tools as may be available to it, to better educate the aviation community on this subject.

## 2. Aircraft Stations on Ultralight Aircraft

72. Our rules currently require aircraft stations operating on ultralight aircraft to identify themselves by an FCC-assigned control number.<sup>258</sup> In the *NPRM*, the Commission stated that "[l]icensing these stations in this manner has not only become administratively burdensome, but has essentially made the Commission the registrar of ultralight aircraft since the FAA does not license ultralight aircraft."<sup>259</sup> The Commission therefore sought comment on whether and how the individual licensing of aircraft stations operating from ultralight aircraft might be terminated without compromising the safety of life and property.<sup>260</sup> We did not receive any comments on this issue. Since there is nothing in the record to indicate that eliminating the requirement that ultralight aircraft identify themselves by an FCC-assigned control number is problematic, and because we believe most such aircraft can acquire "N" numbers, we propose in the *FNPRM* to eliminate the requirement.<sup>261</sup>

## 3. Allocation for Radiobeacons

73. The Commission proposed to amend Section 87.173 of the Rules<sup>262</sup> by adding a designation for radiobeacons in the 525-535 kHz band. The proposal was made because this allocation is reflected in the Section 2.106 Table of Frequency Allocations.<sup>263</sup> We received no comments on this proposal. We will therefore amend Section 87.173 as proposed. The Commission also proposed, as a ministerial matter, to amend Section 87.173 to correct typographical errors, changing "406.25 MHz" to "406 025 MHz" and changing "510 525 kHz" to "510-525 kHz." We will change the latter reference to "510-535 kHz," to reflect the new designation of the 525-535 kHz band for radiobeacon use. However, we replace the reference to "406 025 MHz" with "406 0-406 1 MHz" to be consistent with, and for the same reasons as, our decision to begin using "406 0-406.1 MHz" in Part 80 as the term for the emergency position indicating radiobeacons (EPIRBs) formerly called "406 MHz EPIRBs."<sup>264</sup>

<sup>257</sup> FAA Reply Comments at 1.

<sup>258</sup> See 47 C.F.R. § 87.107(a)(2).

<sup>259</sup> *NPRM*, 16 FCC Rcd at 19026 ¶ 55.

<sup>260</sup> *Id.*

<sup>261</sup> See ¶ 91, *infra*.

<sup>262</sup> 47 C.F.R. § 87.173.

<sup>263</sup> *NPRM*, 16 FCC Rcd at 19027 ¶ 56.

<sup>264</sup> See Amendment of Parts 13 and 80 of the Commission's Rules Concerning Maritime Communications, *Report and Order and Further Notice of Proposed Rule Making*, WT Docket No. 00-48, 17 FCC Rcd 6741, 6774 ¶ 85 (2002), see also Amendment of Part 95 of the Commission's Rules to Authorize the Use of 406 025 MHz for Personal Locator Beacons (PLB), *Report and Order*, WT Docket No. 99-366, 17 FCC Rcd 19871 (2002) (authorizing PLBs on "406 0-406 1 MHz").

#### 4. Ground Testing of TCAS on 1090 MHz

74 The Commission has granted waivers to allow ground testing of TCAS on 1090 MHz.<sup>265</sup> In the *NPRM*, the Commission proposed to codify this use, viewing this waiver process as inefficient and resource-intensive.<sup>266</sup> We adopt this proposal for the reason stated in the *NPRM*, and, accordingly, amend Section 87.475(c)(2) of our Rules.<sup>267</sup>

#### 5. Editorial Revisions

75 We are adopting, without further comment, some FAA proposals that are of a nonsubstantive editorial nature. For example, we adopt the FAA's proposals to update the names of the relevant FAA offices to which various submissions must be made, as set forth in 47 C.F.R. §§ 87.111, 87.147(d)-(e), and 87.529, and to correct a typographical error in 47 C.F.R. § 87.139(h)(2).<sup>268</sup> We will also adopt the FAA's proposals to add certain definitions to 47 C.F.R. § 87.5 for terms that currently appear in Part 87; however we reject as unnecessary FAA proposals to add definitions of terms that do not currently appear in Part 87.<sup>269</sup> We note that the FAA's Comments included a "red-lined" version of the Proposed Rules Appendix of the *NPRM* (*i.e.*, providing proposed insertions and deletions to *NPRM* proposed rule language), but which lack, in part, accompanying explanations. We decline to take action on any substantive FAA proposal lacking in any explanation in this proceeding to support it. For reasons explained below, we are proposing in the *FNPRM* to adopt the FAA's proposals to revise the Part 87 rules listing frequencies in the HF band, to better reflect the ITU *Radio Regulations*, and to make frequencies in the 118-121.4 MHz, 121.6-121.925 MHz, 123.6-128 MHz, and 132.025-135.975 MHz bands available for ground control communications.<sup>270</sup>

### IV. FURTHER NOTICE OF PROPOSED RULE MAKING

76 In the *NPRM*, the Commission asked interested parties to consider whether other sections of Part 87 should be revised to ensure that the Rules "stay abreast of technological advances, conform to the rules governing other radio services, and are responsive to industry needs . . .".<sup>271</sup> Commenters were also asked to identify Part 87 Rules that should be eliminated because they are duplicative, outmoded, or otherwise unnecessary.<sup>272</sup> In response, we received several recommendations for amending Part 87 that we believe merit further discussion. In this *FNPRM*, we seek additional comment on proposals made by various commenters in this proceeding so that we may augment the record on these issues. We also make additional proposals, on our own motion, for which we seek comment. With respect to all of these proposals, we ask commenters to provide us with detailed suggestions regarding any appropriate regulatory language and the specific rules that should be amended in order to implement the proposal.<sup>273</sup>

<sup>265</sup> TCAS is an airborne warning system designed to avert mid-air collisions. *See, e.g.*, Rockwell Collins, Inc., Order, 14 FCC Rcd 3340 (WTB PSPWD 1999).

<sup>266</sup> *NPRM*, 16 FCC Rcd at 19027 ¶ 57. The FAA, the only commenter to address this issue, agrees. FAA Comments at 2.

<sup>267</sup> 47 C.F.R. § 87.475(c)(2).

<sup>268</sup> *See* FAA Comments at 6, 10, 13, 22.

<sup>269</sup> *See id.* at 7.

<sup>270</sup> *See* ¶¶ 86-87, *infra*.

<sup>271</sup> *NPRM*, 16 FCC at 19027 ¶ 58 (footnote omitted).

<sup>272</sup> *Id.*

<sup>273</sup> We note that many parties already provided such detailed recommendations for amending Part 87 in their earlier comments. Other interested parties may wish to review these recommendations.